By the Head of a Spirited Horse:

A Biocultural Analysis of Horse-Depositions as Reflections of Horseman Identities in Early Britain (Iron Age to Early Medieval Period)

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Keywords: Iron Age, Roman, Anglo-Saxon, Europe, Britain, Funerary Practices, Cavalry, Zooarchaeology, Horse-Burial, Horse-Ritual

Horse-depositions were examined to explore the development of human-horse relationships in early Britain using a multidisciplinary approach (osteological, archaeological, historical and ethnographical) to interpret these relationships as part of Horseman identities in the Iron Age, Roman and medieval periods. Medieval Horseman-burials are an established phenomenon and considered an Anglo-Saxon import in Britain which expressed a general elite-warrior male status. However, Horseman-burials form an exclusive minority which suggest not a general warrior-elite but specific subgroups and/or traditions potentially rooted in earlier practices. Husbandry, transportation-use and ritual practices were also investigated. Horses and horse-use were evaluated via stature and correlations with sex. The results indicated sexual dimorphism should be considered when interpreting horse stature. It is hypothesised that generally females were pastured breeding-stock while males were transportation-stock which received supplemental nutrition and care. Males were/are generally larger than females, and size disparity was probably heightened by such gendered horse-use practices. Overall, it appears females were 1.3m or less, and horses over 1.3m were males. Horse-depositional patterns in human, particularly funerary, spaces were analysed. Horse deposition often had ritual components and practices changed over time reflecting changing Horseman identities, particularly during the Roman period. Roman-British interactions, the destruction of native-elite chariot-warfare identities and the development of native-auxiliary groups refocused Horseman identities on mounted-warfare. This change from driver to rider, a more intimate relationship, appears reflected by the development of human-horse burials and Horseman identities linked to auxiliary-native cultural groups which incorporated Roman *equites* ideals with native-auxiliary and imported Eurasian Horseman traditions.

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"…caput acris equi;
sic nam fore bello egregiam et facilem victu per saecula gentem… :

where lies the head of a spirited horse; there they would be famous in war and rich in substance through the ages.

After the fall of Troy, Juno prophesied the Trojan prince Aeneas and his dispossessed people would identify where to found their new city [Rome] by finding the head of a horse sacrificed to the gods
Aeneas I, Virgil c.20 B.C. (Onians 2011:126)

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Part I

PROJECT OVERVIEW AND BACKGROUND

Chapter 1: Introduction and Project Overview

1.1 Research Aim and Project Introduction

The aim of this project is a multidisciplinary analysis of horse and human-horse-depositions as expressions of Horseman identities and the development of these practices in early Britain. A central question is whether early medieval (MED) Horseman-burials were an imported practice or evolved out of earlier Iron Age (IA) and Roman Imperial Period (RIP) practices. This work uses a combination of iconography, history, ethnology, funerary archaeology and bioarchaeology (human and animal) sources and methods to examine the horses, humans and depositional practices which indicate Horseman identities and to interpret the development of these practices and identities.

MED Human-horse inhumations (Horseman-burials) are well attested in Britain and other areas of Eurasia (Bliujienė and Butkus 2007, Bede 2012, Caruth et al. 2005, Carver 2003, Cross 2012, Prummel 1992, Müller-Wille and Vierck 1970-1). The depositions of humans, usually men, with horses have a number of designations in the literature, including: Equestrian, Rider, Reitergrab, and Cavalière burials. The term Horseman, defined in more detail in Chapter 2, is used in this work to indicate human-horse relationships with a linked cultural identity. In Britain and Northwest Europe, these burials are often interpreted as an extension of Germanic weapon/warrior funerary-rites, a practice considered to have been introduced into Britain with the Anglo-Saxon invasions in the post-Roman period (Geake 1997:100-118, Carver and Evans 2005:114-137, 224-301, Fern 2005, Härke 2004/1990, Effros 2003: 76-8, 115-122). In many of these depositions, the horse (often with direct evidence of sacrifice) appears to act as a grave-good indicating elite status, masculinity and warrior

occupation/social-class, and may also have been intended to partner the warrior in the afterlife (Skvortsov 2009, Truc 2012, Cross 2011/2009, O'Connor 1994, O'Brien 1999: 112, Annaert and Ervynck 2013). The interpretations of such burials usually presupposed association of the horse-burial with the closest male-burial (despite a number where a direct connection cannot be robustly asserted) and the concurrent deposition of human and horse. Lauwerier and Hessing (1992) point out these issues in refuting the hypothesis of rider-burials in a number of Roman period sites.

Some of the assumptions around human and horse-burials (Horseman-burials) may be flawed. Significant assumptions considered in this work are: whether MED Horseman-burials were inherently Anglo-Saxon, whether horses were simply high-status indicators and what types of relationships existed between human-burials and horse-burials. When the distribution and contexts of MED Horseman-burials and other horse-burials are considered, many are not consistent with an interpretation of horses as simply high-status or wealth indicators, or, similar to re-evaluations of weapon=warrior-burials, warrior indicators (Härke 1990/2004). Within individual sites, human-burials with horses may not include weapons or may have less prestigious goods than other burials without horses, and many Anglo-Saxon cemeteries do not include horse-burials (Caruth et al. 2005, Evison 1994, MoLAS 2004, O'Brien 1999, Cross 2009, Faulkner et al. 2014). In addition, horse-depositions and horse-burials occur in other periods, particularly LIA-RIP

The historical evidence for a distinct, invasive Anglo-Saxon population is based heavily on one source: the 8th century *Historia ecclesiastica gentis Anglorum* (Bede and Jane c.735 (1903)). Bede, a convert to Roman Christianity, may have had an agenda for promoting the idea of a new Anglian race. Population and cultural change due to immigration in post-Roman Britain may be over estimated. Certainly, research in a number of areas shows evidence for RIP-MED cultural continuity in Britain (Rippon et al. 2015:1-50, Cross 2009:8-20). All of these factors suggest other connections may be involved with MED (and other period) horse-ritual and the expression of Horseman identities. This research investigates and confirms there was significant IA-RIP Horseman-ritual

which could have contributed to the MED Horseman identities represented by MED Horseman-burials in Britain.

Rank, masculinity and warrior status form significant aspects of the Horseman identities represented by these depositions, but these aspects as generalities do not explain the totality of these rites. This study examined IA-MED Horseman-ritual, principally horse-depositions, in an effort to identify the types of depositions, horse populations and groups which were associated with horse ownership, use and ritual. In order to analyse Horseman identity in Britain, this project considered the following questions.

1.2 Research Questions and Objectives

1.2.1 Research Questions

The principal questions explored here are:

- What is a Horseman identity and what types of groups express it?
- How can Horseman identities be defined by archaeological and historical evidence in Britain?
- What is the historic and iconographic evidence for human-horse relationships (husbandry, ownership and use) and Horseman identities in Britain and how does it correlate with archaeological and osteological evidence, e.g. depositions of horse-remains and horse-related materials?
- What types of horses are represented in depositions and what is the relationship to how horses were used?
- Are there consistent typologies, predominant forms or discernible patterns in horse-depositions and Horseman-rituals?
- What Horseman identities existed in early Britain in the IA-MED periods?
- Does the evidence support that IA-RIP Horseman-ritual may have contributed to the development of MED Horseman-burial practices?
- Can Horseman ritual and identity be associated with particular social, ethnic or cultural groups?

- What native, local, external, and foreign influences can be detected in the formation and expression of Horseman-ritual and Horseman identities?

1.2.2 Research Objectives

To answer these questions about the development of horse-deposition and Horseman identities, five primary objectives were addressed using osteological and funerary analyses of a set of case-studies and comparative sites, supplemented with analyses of iconographic, historical and other data.

- To analyse historical, ethnographical, anthropological, iconographical and archaeological sources to explore IA-MED expressions of Horseman identities in Britain linked with the deposition of horses and related materials.

- To select a set of sites with evidence of horse-ritual for osteological and funerary analyses or re-analyses of MED, IA and RIP horse skeletal-material and associated human skeletal-material based on the literature review and availability of materials.

- To produce osteological assessments of age, sex, size and pathologies from the available bone for the case-study sites and use this data to discuss human-horse relationships such as husbandry, ownership and types of use (including transportation and ritual).

- To evaluate and use additional zooarchaeological, archaeological, iconographic and historical data to interpret human-horse relationships.

- To re-analyse and re-interpret the available data (archaeological, funerary, osteological, historical, iconographical, etc.) from the case-studies and a selection of comparable sites to discuss the nature of identified Horseman-ritual and correlations with cultural, social and personal identities, and evidence of Roman, Anglo-Saxon, Germanic, and/or other Eurasian influences.

1.3 Past Research

As this is a multi-disciplinary project, many publications contributed to the analysis and direction of the study. The primary disciplines applied were bioarchaeology (human and horse osteological analyses) and funerary archaeology, followed by the use of historical, ethnological and iconographic sources about human-horse relationships. There is a significant lacuna in archaeology regarding osteological analysis and reporting of horse remains and the role of the horse and horse-ritual, which means the available specific literature was limited and more broadly oriented literature was often reviewed. This discusses some of the primary zooarchaeological research on the horse which contributed to this research. Additional information about past research is presented in the background and literature review section which discusses the historical context and iconographic evidence of Horseman identities and aspects of animal-ritual (specifically horse-depositions). Past research pertinent to the case-studies is included in the Results and Discussion sections. Primary osteological literature is discussed in the Methods section.

1.3.1 Past Research: The Horse in Zooarchaeology

Significant archaeological studies of the horse in past British societies have been limited. Archaeological work more generally on animals, are, of course more plentiful and some include material on horses. The primary, specifically horse-related work, examined as part of this project include: Kaagan's (2000) work, *The horse in Late Pleistocene and Holocene Britain*; Johnstone's (2004) *A biometric study of equids in the Roman world*; Bendrey's (2007) *The development of new methodologies for studying the horse: case studies from prehistoric Southern England;* historian Cathers (2002), *An examination of the horse in Anglo-Saxon England*; and Müller-Wille and Vierck's (1970-1), *Pferdegrab und pferdeopfer im frühen Mittelalter.*

Kaagan's (2000), *The horse in Late Pleistocene and Holocene Britain* focuses on the dating of equid remains, particularly very early specimens, and defining

the gap between pre- and post-glacial horse populations in Britain. It also provides a detailed list of horse-materials which have been radiocarbon-dated, including IA-MED specimens. The study does not discuss socio-cultural aspects of human-horse relationships to any extent, though Kaagan (2000: 194) notes horse-samples from c.9000 BP included direct and indirect association with humans, indications of ritual and of strengthening human-horse relationships. The work provides important base-data for beginning to understand the chronological development of human-horse relationships in Britain. This data and others (Bendrey et al. 2013, Olsen 2006a) also make it clear there are regular disagreements between contextual-dating and radiocarbon-dating of horse remains, an aspect significant to a critical approach to horse-depositions and the development of Horseman identities. Horses as intrusive, residual, primary, secondary and re-appropriated materials via human manipulation is a key point in this study.

Johnstone's (2004) PhD thesis, *A biometric study of equids in the Roman World*, focuses on differentiating equid species, in particular mules from horses. Johnstone also produced a number of faunal reports which described and evaluated equid remains with more detail than is commonly given to this usually poorly represented and analysed species. Following on from research by Simon Davis, the study used material from zoo Przewalski's horses (Albarella and Johnstone 2002:33-36). While interesting research is presented, there are significant problems in using zoo animals as baseline skeletal populations. Zoo animals are notoriously pathological and live in conditions with little parallel to either wild or normal domestic populations. The horse differentiation argument, based primarily on gracility indices, is problematic. Gracility indices were used on material often without sex or age data. Both can affect bone morphology (Árnason and Bjarnason 1994, Bartosiewicz 2006b). There is no significant sample of osteological mules, either in this thesis or generally. The lack of horse reference-collections and published osteological data low a general problem, particularly in determining normal species variation. These aspects are important to the evaluation of correlations between morphology, sexual dimorphism and aspects of human-horse relationships discussed in this study.

Bendrey's (2007a) PhD, *The development of new methodologies for studying the horse: case studies from prehistoric Southern England*, adds to the meagre body of archaeological research methods currently available to investigate human-horse relationships. The research focused geographically on sites in southern Britain (Dorset, Wiltshire, Hampshire, West and East Sussex, and Kent). Chronologically his study encompassed the Late Neolithic (LNP) through IA. Bendrey presented new methods and additional evidence on existing methods. This includes quantification of the relative rarity of the horse taxon within assemblages, recording ossification levels of metapodial interosseal-ligaments, isotopic analysis to identify the movement and supply of horses, additional evidence regarding tooth-wear to indicate bit-use (supplementing: Anthony and Brown 2000, Anthony 2007).

Pferdegrab und pferdeopfer im frühen Mittelalter (Müller-Wille and Vierck 1970-1) is probably the bedrock review of horse-burial practices for MED Europe. The section on Britain, by Vierck, outlines c.32 burials which remain the core known MED Horseman-burials used by scholars of human-horse relationships (Bartosiewicz and Bartosiewicz 2002, Fern 2005/2007, Lauwerier and Hessing 1992, Price 2003). While no longer up to date, this reference is still very important to horse-burial studies. However, there was little osteological examination/data presented, and accurate dating may be a significant issue, which impacts developmental interpretation of Horseman-ritual, a primary aspect of this research.

Pertinent, but more general works consulted included: Morris' (2008), *Re-examining associated bone groups from Southern England and Yorkshire, c.4000 BC to AD 1550,* Hill's (1995), *Ritual and rubbish in the Iron Age of Wessex: a study on the formation of a specific archaeological* record and Grant's (1984/1989a/b/c/1991a/b) work on British IA-RIP animals which also included some of the better reportage on horse-depositions. Some of the most important works addressing aspects of this study were European. Prummel's (1992/2001) work, in particular, *Early Medieval dog burials among the Germanic tribes*, includes much information on horse-burials. Groot's (2009a/2009b/2011) work, especially *Animals in ritual and economy in a Roman frontier community:*

Excavations in Tiel-Passewaaij, represent significant contributions to the study of archaeological horses, especially horse-ritual. Other important work on horses and Horseman identities include Bökönyi's (1972/1974:230-296, Bökönyi et al. 2010) extensive work on horses, and a number of Baltic scholars (Bertašius and Daugnora 2001, Bliujienė 2009, Daugnora and Thomas 2005). In addition, many site-reports, articles and books reviewed for this work included discussion on human and horse bioarchaeology, horse-deposition and on associated funerary archaeology which were instrumental in the results of this project, many of which are cited within the text.

1.4 Terminology, Glossary and Abbreviations

Zooarchaeology is the analysis of animal remains from archaeological sites to reconstruct the cultural lifeways of people and the interrelationships between people, animals, and the environment. This term is certainly descriptive of this study, but scholarship trends have introduced a number of new terms pertinent to the type of research used in this study. Three terms of particular importance are: *bioarchaeology, biocultural* and *osteobiography*. These terms were created to describe the study of biological remains, principally bone and/or preserved tissues, within socio-cultural contexts. However, there are differences in their meaning and usage between Britain/Europe and North American.

Bioarchaeology is the archaeology of life (plants and animals). It uses biological methods (osteology, pathology, isotopes, DNA analysis, etc.) to examine archaeological remains to learn about past living populations. The term was coined in 1972 by Graham Clark, a founding British archaeologist particularly interested in the interaction of humans, animals and the environment (Šlaus 2015). Clark recognized the interdependency of human-animal-environment relationships and the structuring of human culture and societies (Gosden 2002:53-4, 89). Clark's emphasis on ecology distanced British archaeology from its sister discipline anthropology, a split that continues today. In the Americas archaeology remains a sub-discipline of anthropology. Given Clark's emphasis on faunal material in his original definition of *bioarchaeology*, it is somewhat

ironic the word was redefined in the US in 1977 to exclude all animals except humans (Šlaus 2015). Bioarchaeology is used here in the original sense to include all animals, including humans. If human and non-human animals are discriminated, the terms used are: human osteoarchaeology and faunal osteoarchaeology.

The terms biocultural and osteobiography are both borrowed from the human/anthropological disciplines. Biocultural approaches assume human culture, like the environment, can have significant impacts on the biology of humans and other animals (principally domesticates) in close contact with humans. Therefore, the analysis of skeletal remains can give significant insights into the culture that shaped those changes. Cultural requirements may influence size, age at death, manner of death, processing of remains, deposition of remains, and other aspects.

An osteobiography is a biographical description of an individual based on osteological and palaeopathological data, supplemented with evidence from archaeology and other disciplines such as iconography, history and ethnography. Osteobiographies are regularly used in human osteoarchaeology and can be particularly effective investigating animals under-represented in archaeological assemblages or occur as ABGs (associated bone groups representing whole or partial skeletons). This description applies well to dogs, cats and horses. All of these animals have a mixed-use status not generally centred on human consumption which includes more complex pet or companion relationships. Archaeological horses, particularly from funerary contexts, are well suited to osteobiography methods.

Most specialist terms are also defined at first usage within the text.

1.5 Dating Issues and Chronology

Dating and context are key issues in making sound interpretations of archaeological materials. Generally speaking, for many IA-MED sites secure

dating can be problematic and is often based on artefact typologies and stratigraphy (Hamilton et al. 2015). Correct dating is certainly a problem regarding horses, and errors in dating have had significant repercussions. This has been particularly noticeable in the search for early evidence of horse domestication. A famous error involved the Dereivka “cult-stallion” considered Eneolithic, and the earliest dated domesticated horse, until radiocarbon-dating indicated it was an IA horse (Anthony and Brown 2000, Olsen 2006a).

Levine (1999) reported an initial AMS-date from the excavator of 4330 +/- 120 years BP for KI-5488 (“cult stallion”), mean cal. 2915 BC. The skull was re-dated in 1997, using a tooth, providing the date: cal. 700-200 BC (Anthony and Brown 2000; Olsen 2006). The reason for the significant discrepancy between the dates is unknown, but suggests earlier samples were contaminated. This case also high-lights what appears typical of many horse-depositions: the addition of horses into differently dated contexts.

More importantly, contextually-dated LNP, Bronze Age (BZA) and IA horses have regularly been mis-dated, often returning much later radiocarbon-dates (Baxter 1991a, Baxter 1991b, Bendrey 2007b/2007a:15, Kaagan 2000:139, Wijngaarden-Bakker 1986:17-18,82-85). An important example is Kirkburn (East Yorkshire) where two horse-burials from a Neolithic enclosure associated with IA burials, yielded LIA-RIP radiocarbon-dates (Baxter 1991a/b; Kaagan 2000:139). Another important site was Newgrange, Ireland. This assemblage was originally assumed Beaker period and important early evidence of horses in Ireland. However, when dated, the horse-bone was RIP (Bendrey et al. 2013, Wijngaarden-Bakker 1986:17-18, 82-85).

The insecurity of many horse-burial dates contributed to the chronological range of this study. While the original emphasis was on exploring changes between the Romano-British and Anglo-Saxon periods in Britain, initial research showed assemblage and burial dating was consistently not robust enough to allow sharp cut-off dates without potentially missing important data and drawing erroneous conclusions. It also became clear that horse sites, especially horse-ritual sites, are often multi-period, which increased the possibility of mixed-period materials.

A broader chronological scope was also likely to provide better nuanced and more satisfactory cultural interpretations of depositional practices.

Radiocarbon-dates given in this text are all calibrated at 90% or above, unless otherwise stated, and given in the format cal. 123 AD/BC.

1.5.1 Archaeological and Historical Dating Conventions

The use of dating and chronology periods in the archaeological and historical literature is often conflicting, with overlapping dates and multiple names based on materials, technology, artefact typologies, and political/social organisation. Some examples include: Iron Age, Celtic Age, Post-Classical period, Romano-Britain, Anglo-Saxon, Dark Ages, Migration Period, etc. Table 1.1 gives the dating scheme and abbreviations used in this work.

Table 1.1: Chronology and Abbreviations in this Text
(Editor 2016h, Editor 2016i, Johnson 2016, Cunliffe 2005:30-32)

Period	Start Date (c.)	Abbreviation
Post Medieval	1500 AD	PMED
Late Medieval	1100 AD	LMED
Early Medieval (Anglo-Saxon)	400 AD	MED
Roman Imperial Period (Roman Britain 43–41AD)	0 AD	RIP
Late Iron Age	BC 100	LIA
Middle Iron Age	BC 300	MIA
Early Iron Age	BC 800	EIA
Iron Age	800	IA
Late Bronze Age	1000	LBA
Middle Bronze Age	1500	MBA
Early Bronze Age	2500	EBA
Bronze Age	2500	BZA
Late Neolithic Period	BC 3000	LNP

La Tène: c.500-1BC; Hallstatt: c.800-500 BC
(Cunliffe 2002:16, 112, Megaw & Megaw 2001:228-244).

The table follows generally accepted British and European chronologies currently in use, but periods in different sources may vary up to 400 years, and even the seemingly reliable sources consulted, such as English Heritage, varied and overlapped or gapped dates. Whenever possible numeric date ranges are included.

Table 1.2 provides a list of other abbreviations used commonly in the text, figures and tables.

Table 1.2: Additional Abbreviations

Term	Abbreviation
associated bone group	ABG
withers height	WHt
measurement	mmt
Hand (WHt mmt)	H
metapodial	MP
metacarpal	MC
metatarsal	MT
incisor	I
premolar	P
molar	M

1.6 Case-Study Selection

The basic selection criteria for case-study sites were the presence of Horseman-ritual as evidenced by horse-depositions in human-spaces. Horse-depositions could comprise whole horses, horse-elements (skull, limbs) and/or disarticulated assemblages. Human-horse depositions are referred to as Horseman-burials where horse and human are present as companion-burials and/or the horse can be interpreted as a grave-good. Where this relationship

was less clear and horse and human may represent votive, punitive or other ritual intent, they are designated Horseman-ritual (see also Ch.2). The set of case-studies included representation of Horseman-ritual from MED, RIP and IA contexts. The sites were not required or originally selected for evidence of multi-period Horseman-ritual, but this aspect was later investigated.

Earlier and subsequent research indicated the horse was/is not inherently a food-animal in most cultures and often received different depositional treatment, often with ritual-intent (Cross 2009/2011, McKinley et al. 2014:217, Casey et al. 1993:80, 97, 102-116). Original review of MED sites was by geographic area, but this proved exhaustively time-consuming with few sites with significant data found and was abandoned as unproductive. MED sites with known horse depositions were targeted, these are all cemeteries. Reviews of historical anthropological literature indicated strong connections between the military (cavalry) and transportation-use and ritual-use, which could be evaluated targeting RIP military fort sites. These also afforded historical evidence for the presence of cavalry personnel. IA sites were targeted based on the known Arras culture chariot depositions, which link with Pytheas' description of elite Horseman and chariot-warfare in MIA Britain. Given military and elite connections, hillforts, which may have had war-refuge, elite, ritual and/or social gathering functions, were another target (Cunliffe 2006:115-117, Cunliffe 2002:112). The final selection relied heavily on availability and survival of materials, which, unfortunately was not true for many considered sites. Osteological material from two IA sites (Kings Barrow, Arras and Broxmouth Hillfort), four LIA-RIP sites (Sedgeford, Newstead fort, Vindolanda fort and Driffield Terrace) and four MED sites (three British: Sedgeford, Sutton Hoo and Lakenheath, and one continental: Tournai).

All of the case-studies are clustered in eastern Britain except the one on the opposing continental coastline. The MED sites are clustered in southeast Britain. This apparent clustering is one of the reasons MED Horseman-burials are considered an Anglo-Saxon/Germanic phenomenon. The IA-RIP sites are also in eastern Britain, but mostly clustered farther north, a factor of frontier/fort location. This was also partially due to availability. A number of MED sites with

horse-bone also have IA-RIP horse, but were not available within the context of this project. Comparative sites from the literature were included in the discussion section to broaden the geographic overlap. In addition, discussion of the MED sites includes evidence of IA-RIP activity, and the continental sites indicate parallel IA-RIP Horseman-ritual and British-Continental interaction prior throughout the study period.

Apparent *Eastern* British predominance must also be treated cautiously. There are many other considerations which affect this apparent predominance, probably the most significant being bone-survival. Western and northern areas (Wales, Scotland) are notorious for poor bone-preservation primarily related to acidic soils (Dando 2017). The case-study Broxmouth is a notable geological exception with excellent bone preservation and a significant horse assemblage. Historic literature indicates Horseman identities and horse-keeping (see also Ch.10) existed in many areas with little surviving archaeological evidence, suggesting eastern clustering is probably due to taphonomic issues (Davies and Jones 1997, Lewis 1988/1989, Green 2009, Hemming 1998, Gladitz. 1997:167).

1.7 Organisation

This investigation of the development of Horseman ritual in Britain and potentially associated identities is organised into six sections. This section introduced the topic and thesis organisation. Section II provides background material defining and discussing Horseman identity and its development. Section III gives a review of the osteological methods used and developed during this study. Section IV presents the materials examined, site summaries and osteological analyses results. Section V discusses living (horse husbandry, ownership and use) and ritual (sacrifice and burial) human-horse relationships using the case-studies materials and comparative data from Britain and areas of Europe (primarily from Belgium and the Netherlands). Section VI presents the conclusions from the studies and offers some avenues of further research. Additional data is provided in the appendices.

PART II: PROJECT BACKGROUND:

Historical Contexts and a Discussion of Horse-Ritual and Horseman Identities in Terms of Status, Masculinity & War

This section is organised into four chapters. Chapter 2 discusses the ideas of identity and how it is used in this work, particularly some of the key points of status, masculinity and warfare. Chapter 3 examines the historical evidence of human-horse relationships in early Britain. Chapter 4 follows with a discussion of Horseman imagery from sources such as gravestones, coins, statuary and textiles which provide clues about some of the possible belief systems and cultural influences which moulded British Horseman identities. This imagery indicates changing Horseman identities within Britain, helps place British Horseman identities within the wider Eurasian context, and provides a framework for interpreting the bioarchaeological material. Chapter 5 examines ideas of ritual, religion and sacrifice in archaeology, and provides a summary and basic typology of the different types of horse-depositions known to occur.

Chapter 2: Issues of Identity and Horseman Identities

Caesar rode a remarkable horse, foaled on his own lands, which the soothsayers declared foretold the rule of the world for its master and he was sanctified with a statue at the temple of Venus Genetrix

Book One: The life of Julius Caesar (Tranquillus c.121AD: 61 [VIX])

"*…chiefyst offices belongyng to horsemanshippe: that is to saye, the office of the breeder, of the rider, of the keper…"* Blundeville and Grisone (1561:title)

This chapter's epigraphs indicate some of the powerful human-horse relationships and how these Horseman identities were perceived and expressed. The Horseman was a warrior and conqueror, someone with military mastery, speed and strength, and the gods' favour. Roman emperors claimed Horseman identities and appropriated attributes of the divine Horseman, particularly the incarnation mythos of Alexander the Great to underline identities of a divinely-anointed horseman, warrior and ruler (Johnston 1992, Mackintosh 1986/1995). In Early Britain, similar Horseman identities and were portrayed in imagery (Ch.4), oral-literal traditions (Ch.3 and Ch.10) and occasionally ritually via the deposition of horses and/or horse-related materials.

Horse remains are relatively scarce, but are found in a number of archaeological contexts (ditches, shafts and pits), many suggesting ritual. People have buried horses and parts of horses with intention, not simply to dispose of unwanted carcasses in many areas and periods (Grant 1989a/b/c, Clutton-Brock 1974/1991, Fern 2005/2007/2010, Prummel 1992/2001, Oexle 1984). The scarcity of these depositions imply horse-deposition was associated with a minorityl sub-groups.This chapter briefly discusses identity, current and historical 'horse cultures' and Horseman identities, and how this project defines the suite of archaeological evidence indicating Horseman identities.

2.1 Human Identities

Humans always have, and participate in, a number of different identities. Cultural and social identities are defined by group memberships which have distinct attributes and can be differentiated from other groups (Deaux 2001). These groups may be defined by ethnicity, nationality, language, religion, class, age, gender, or occupation, amongst others. Individuals and groups may also participate in multiple identities simultaneously.

Many identities are often expressed through rituals which may be as mundane as the wearing of particular items or colours, or as elaborate as specialised funerary rites. These rituals serve to reinforce the group's and the individual's sense of membership, and also signal their membership, their identity, to others. The use of special items (physical culture) and the performance of funerary ritual to signal identity are of particular value to archaeological analyses, and this research in particular.

2.2 Horseman Identities

"Horseman" has a general usage signifying "a rider on horseback, especially a skilled one" (Oxford Dictionary 2016). Others, like Blundeville and Grisone (1561), expand the definition to include someone, usually a man, who rides or drives a horse, or one who owns, raises or manages horses. Synonyms typically expand this meaning to encompass elite and military status: cavalryman, hussar, cavalier, and knight. Historically, horseman became a term of social rank, often linked with land ownership and wealth: *hippeis* class (Archaic Greece), *eques* class (Republican/Imperial Rome), *knight,* and *marshall* (Medieval Europe) (Bugh 2014, Davies and Swain 2010:303-314, Franz 2006). The usage in this study incorporates both the physical connections between human and horse and the social connections to indicate a group of people whose identity is interlinked with ownership and use of the horse.

Horseman identities may signify a larger Horseman centred culture, such as the Mongols, Yakut (Siberian subset of Mongols), Cossacks and some of the North American Indian groups, or a subset of a culture, usually associated with rank or profession. Horseman subset groups, such as knights and marshalls, cataphracts, Mexican charros, Hungarian csikós, and equites were often associated with warfare and/or aristocracy. There were also lower-class Horseman identities associated with the care of horses and cattle, vehicle drivers, jockeys, grooms, and dispatch riders, but even these groups were often more elite than similar professions involving other animals (Humphrey 1986:155, 525-9ff, Jankovich and Dent 2007:22, 89ff, Fahrenkrug 2005, Bowman et al. 1990).

Horseman cultures are often associated with pastoralists, particularly cattle-breeders, where the horse is an integral part of their lifestyle. The Yakut, for instance, are cattle and horse breeders maintaining their Horseman culture among mostly reindeer herder groups in an Arctic environment since c.1000 AD (Takakura 2015: 10). This group of Central Asian pastoralists maintain their Horseman identity through ritualised horse husbandry, riding, religious, and community activities, including the ritualised killing, display and consumption of horses (Takakura 2015: 157-165ff, BBC 2009). Mongolia, the Altai region and Eurasian Steppes are all well known for their Horseman cultures which include a variety of horse-ritual such as display of sacrificed horses and burial with humans (Linduff and Rubinson 2008, Mallory 1981, Piggott 1962). Examples of Horseman subcultures include the European hunting and racing portions of the aristocracies, the cowboy and gaucho cultures of the Americas, and the Spanish bullfighting cavaleiros.

The focus in this work is the identification and interpretation of Horseman identities associated with depositional practices in early Britain. Horseman identity is defined here as cultural subgroups which link themselves symbolically and physically with horses in ways which can be discerned from the archaeological and historical records. The type of traits noted above, and exhibited by historical Horseman-groups, such as special dress, insignia, horse-sacrifice and consumption, religious affiliations, funerary rites, participation in

horse-racing and mounted hunting, and horsemanship displays can be used to identify possible Horseman groups in early Britain (Davis and Maurstad 2016:1-22, 147-196ff, Hyland 1993).

Anthropologists Gilbert Wilson (1924) and Emilio Willems (1944) identified a cultural 'Horse Complex' where the care, ownership and use of horse was a central cultural identifier. Willems (1944) work is of particular relevance to this work as it discusses the creation of new Horseman identities with increased status by the melding of native-immigrant values, practices and peoples which were subsets in the immigrant and receiving cultures. This is a process which appears particularly pertinent in the British RIP (See Ch.11).

The Horseman identity explored here is defined as one linking an individual or group with horses, as owners, breeders and/or users, whose way of life is interlinked with horses, especially those with military connotations. While many cultures included horses, not all parts of these cultures were personally involved with horses or had Horseman identities. For instance, the Romans are not generally considered a Horseman culture. Roman sacrificial events normally featured cattle, caprines (sheep/goats) or chickens. Only one Roman horse-ritual, the October Horse race and sacrifice, is known, and this event may have had 'barbarian' connections and roots (Pascal 1981, Devereux 1970). However, portions of Roman culture had Horseman identities, in particular the elite equites. By the Imperial period, this subgroup, once intimately associated with cavalry warfare, was largely ceremonial and linked with wealth, though the class continued to supply military officers. The majority of cavalry in this period were 'barbarian' auxiliaries sourced from a variety of Eurasian cultures, many with native Horseman identities.

The following chapters will examine some of the early British expressions of human-horse relationships evidenced via imagery, dress, accoutrements, and in funerary rituals, particularly the association of humans with the physical remains of horses, horse-related equipment or imagery. The emphasis here, as a biocultural study, is on the physical remains of humans and horses. Table 2.1 summarises the elements used to identify Horseman-depositions. Two primary types of depositional groups are defined: Horseman-burial and Horseman-ritual.

The primary difference is that Horseman-ritual does not necessarily include human remains, and when it does the remains may be of a votive nature. Humans and horses may occur as inhumations, cremations or mixed burials.

Aspects of Horseman identities (status, masculinity, warfare) are explored in Parts IV and V using the Table 2.1 criteria. Elite status is based primarily on contextual elements (structures, position) and grave inclusions. Masculinity is based on skeletal sexing, goods and iconographic elements. Identification of warriors and war-horses is via contextual elements and/or the presence of weapons, armour or military insignia, with additional consideration of skeletal expressions of weapon trauma and pathology as possible indications of activity.

While the emphasis here is on humans with horse-depositions, some discussions include symbolic human or horse elements. Symbolic Horseman burials replace either horse or human with representative items, which may include: spurs, weapons, helmets, harness, vehicles, or imagery. Some of the principal foreign ethnic groups associated with Horseman identities and interaction with British Horseman identities include Batavians (Netherlands), Sarmatians and Huns (Eurasian: Southern Russia, Mongolia, Bulgaria, Romania, Hungary) and are discussed in more specific detail in Chapters 4 and 11-12.

Table 2.1: Elements of Horseman-Burial and Horseman-Ritual

1. Horse -Burial	Horse-Bone Elements	2. Human	3. Items - Horseman	4. Items - Elite	5. Structure
Head	Complete, teeth, crania, mandible	Male (majority)	Bit, harness, shoe	Weapons, jewellery	Mound, tomb, cairn/cist
Limbs	Complete, foot (MP-PH)	Female (rare)	Armour, boots, spurs	Vessels, addl fauna	Post-holes
Complete	Head+ spine/pelv +limb	Juvenile (v.rare)	Saddle, Vehicle	2ndary burials	Boat, other wood

Horseman-burial: 1+2; 2+3 (symbolic horse); 1+3 (symbolic human).
Horseman-ritual: 1 or 3
Horseman-burial/Horseman-ritual: may also include 4-5.

Chapter 3: Human-Horse relationships in Britain and the Socio-Political Context of first millennium AD Britain

"These islanders ...they enter battle on foot....they do not even know what a horse is... for it is clear that this animal has in no time lived in Brittia."

The Wars of Justinian, Prokopius of Kaesarea , 6th century AD

(Prokopius et al. (c.551) 1935, 2014 revised edition)

This chapter looks briefly at the socio-historical context of LIA-MED Britain, a period which has few historical sources. The epigraph eloquently illustrates some of the problems created by too heavy reliance on these few historical sources. Procopius, a 6th century Byzantine historian, indicates the Byzantines believed British peoples did not use horses, indeed, never had horses (Prokopius et al. (c.551) 1935:507-9). Procopius is considered a good historical source and was contemporary with the events he described, but his beliefs about British human-horse relationships were erroneous; making this source a pertinent reminder of the dangers of relying too strongly on the few written sources available for early Britain. There is ample physical and historic evidence for horses and their use in Britain from at least the IA (Clutton-Brock 1991, Cross 2009/2011/2012, Prummel 1992, Bökönyi 1968, Cunliffe 2002:16, 52, 112). Written sources may be precious glimpses into the past, but their rarity for this period does not give them more credence simply because they are rare, and must always be used critically and with caution.

The following section reviews some of the evidence for the establishment of horses and human-horse relationships in Britain. Some of the general historical concepts and presumptions of existing interpretations of human-horse-burials are also discussed. Additional political and historical events which may have shaped human-horse relationships, particularly those which can be linked with

Horseman identities during the IA-MED are also briefly considered here and expanded in later sections.

3.1 The Domestic Horse in Britain and Early Human Relationships

Horses were present in Britain prior to the last major glaciation and were still present after the Late Glacial Maximum (LGM), but appear to have disappeared sometime around the final flooding of the English Channel c.6000 years ago, producing a representation gap of c.4000 years (Table 3.1). There is no firm evidence for horses in Britain (or Ireland) until the middle Holocene, with definite evidence in the Bronze Age (Bendrey et al. 2013, McCormick 2007, Kaagan 2000:314, 245ff,). While some bones have been found in what are considered Neolithic (or earlier) contexts, all subsequently dated examples have proven BZA or later (Bendrey et al. 2013, Serjeantson 2011, Olsen 2006).

Kaagan's (2000) study of early horse remains in Britain, added a number of much needed radiocarbon-dates to the study of horses in British cultures. Table 3.1 gives some of the early pre-gap dates and the five earliest British Post-Gap dates found during this research. There are no dates for the period between 7,000 BP and 3050 BP, supporting the conclusion horses disappeared during the period of deglaciation and flooding after the LGM. Kaagan's (2000:216-232) research concluded the horse-gap was 5000 years (c.9000-4000 BP), and horses only began to be prevalent, probably as domesticated animals, c.3000 BP (LBA) in Britain and Ireland.

Table 3.1: Earliest Radiocarbon Dates for Horses in Britain and Ireland

Data source: Kaagan 2000:85, 123-170; other references from Bendrey 2013: Table 2).
Includes five earliest Post-Flooding gap dates, and some Pre-gap dates, including latest.

Dates BP	Calibration (95.4%)*	Site	Latest Reference
27,630 +/- 400	30,977-29,275	Shandon Cave, Ireland	Woodman et al. 1997
Post-Late Glacial Maximum (Heinrich Event 1 c. 19ka)			
10,220 +/- 90		Aveline's Hole, Somerset	Kaagan 2000
10,000 +/- 200	10,437-8928	Kendrick's Cave, Wales	David 1991
7440+/-70	6445-6106	Cavall's Cave, Wye Valley	Bronk Ramsey et al.
Varying levels of deglaciation. 'Final' flooding of Channel c.6.2ka			
3050 +/- 80	1492-1055	Etton, Cambridgeshire	Hedges et al. 1996
3045 +/- 50	1423-1131	Durrington Walls, Wiltshire	Kaagan 2000
3040 +/- 80	1490-1049	Etton, Cambridgeshire	Hedges et al. 1996
2940 +/- 50	1367-1002	Fussell's Lodge, Wiltshire	Kaagan 2000
2929 +/- 30	1270-1010	Whitehawk, East Sussex	Whittle et al. 2011
2790 +/- 70	1129-806	Runnymede Bridge, Surrey	Hedges et al. 1993

* All dates are BC. Glaciation data Bowen et al. 1986.

The earliest historic evidence of horses and Horseman identities in Britain is the account of Massalian-Greek geographer, Pytheas, c.330 BC (MIA). Pytheas circumnavigated and explored parts of Britain on foot, before going on to possible excursions around Iceland and the Scandinavian Baltic (Mariners' Museum 2015, Britannica 2015). While his original work, *On Oceans*, is lost, Pytheas was quoted and commented upon extensively by Polybius (Greek historian, c.118 BC) and Strabo (Greek geographer, c.35 BC-c.20 AD), among others, and many of his observations and measurements about Britain have archaeological and modern geographic support (Cunliffe 2002).

Pytheas' described landfalls mostly on the West coast (Cornwall, Northern Wales, the Isle of Man, the Scottish Western Isles, and the Orkneys), and one possible southeast landfall in Kent (Cunliffe 2001:93-116). Pytheas described Britain as thickly populated with agricultural, stratified societies with elites and kings who used horses and chariots for intertribal warfare. Archaeologically, this early Horseman culture is illustrated by finds of chariots, horse-gear and Arras funerary rituals (Stead and Legge 1984, Cunliffe 2005:193,626). British culture appears to have remained quite similar to Pytheas' description with chariots finds until the LIA-RIP, when the Romans, and the next historic source mentioning horses, appeared in Britain.

3.2 LIA-RIP Historical-Political Impacts

Probably the biggest impact on Northwest European peoples in the 1st centuries BC-AD was the rise of the Roman Empire. Whether an area became part of the expanding Empire or stayed outside its direct control, societies were influenced via warfare, trade and the movements of diverse groups of peoples. Impacts on cultural traditions were immense, affecting food, clothing, social organisation, and ritual.

With first century BC Roman expansion, came the first attempts of direct domination of Britain. Caesar made two failed invasions of Southern Britain, probably near Deal (Kent), in 55-54 BC (Bradley 2009, Caesar et al. c.56 BC (1869:Ch.24)). These attacks and earlier warfare in Gaul were chronicled by Caesar and other Roman sources, and provide primary sources about British Horseman identities. Caesar (c.56 BC (1869)).) described the type of warfare practiced by Southern British tribes, which featured horse-chariots and cavalry. The effectiveness of this unfamiliar type of warfare (Caesar only mentions Gaulish cavalry) proved disastrous for the first invasions. Caesar commented on the expertise of the war-charioteers, the hit-and-run tactics of British cavalry and how the British forces effectively ambushed, harried and defeated the invading Romans (Caesar c.56 BC:Ch. 24, 4.33, 5.16, Bradley 2009).

Chariot-warfare was established in Eurasia during the second millennium BC, and while in Britain it continued into the first millennium AD, elsewhere cavalry troops were replacing chariot-warfare from the middle of the first millennium BC (Gladitz 1997:115-7, Piggott 1992:37-122). Two legendary traditions also had significant impacts on Roman military and MED European military identities: Homer's (c.8th century BC) epic recounting of the Trojan War (c.12th century BC) and the exploits of the Macedonian, Alexander the Great (356-323 BC). Alexander's armies featured elite cavalry and his life was/is greatly admired by military groups from his time until the present. Pertinent to this study, many aspects of Hellenic culture, particularly the exploits of Alexander and his warhorse, Bucephalus, and the Trojan epics were foci of Roman military traditions and ideals, particularly within the cavalry, and, through them, of other

RIP-MED warrior/elite groups (Arnold and Fiddes 1906:100-120, Bennett 1995, Pseudo-Callisthenes 3rd-7th century AD, Hammond 2007:23,43,77,112).

Alexander and Bucephalus had cultic status, epitomising the military (and divine) Horseman identity. The mounted Horseman identity was one of human-horse brotherhood (spiritual centaurs), a relationship more intimate than that of chariot-Horseman. While some iconography for horsemen appear sporadically in the Mediterranean prior to Alexander, the image appears of minor importance and elites/gods were nearly always portrayed as chariot-drivers (Mackintosh 1995: 1-10). The progenitor of the divine Horseman-warrior (and possibly the Dioscuri, the divine horse-man twins) appears to centre on the hero Bellerophon and Pegasus (son of Poseidon and the Gorgon) in the Greco-world, which rose in prestige during the period of increased eastern Eurasian contacts (8-6th centuries BC). In the 4th century, Macedonian's youthful warrior-king Alexander, brought the development of the Divine Horseman (Dixon and Southern 2013, Johnston 1992, Mackintosh 1995, Quast 2012). Alexander also practiced horse-burial ritual, creating a tomb for Bucephalus when he died, and generations of men and horses throughout Eurasia claimed descent from Alexander and Bucephalus (Brown 1937, Lee 2002, Polo et al. c.1295 (1871):150).

The cult of Alexander and Bucephalus grew and inspired Horseman identities for centuries, and was a distinct influence in Roman military traditions. A number of Roman Emperors, who had very direct impacts on Britain and the development and use of cavalry troops in Britain, followed the cult. Julius Caesar, Septimus Severus and his son, Caracalla (who considered himself Alexander's reincarnation), all visited Alexander's tomb (Kosmetatou 1998).

After Caesar's initial invasion failed, the Romans, whose military style emphasised infantry, withdraw from active confrontation with the British for almost a century. When the Romans returned under Claudius in c.43 AD, their armies had more experience with numerous types of horse-warfare, and Roman cavalry continued to evolve through interaction with more horse-oriented groups, particularly during the Dacian and Marcomannic Wars (Hyland 1993, Stadter 1978). Roman cavalry relied heavily on auxiliaries, particularly those from a number of horse-peoples including the Pannonians,

Thracians/Macedonians and Sarmatians, all with distinct Eurasian connections (Cool 2005, Mackintosh 1995:3-4, Dent 1962:7-16).

After some twenty years of warfare and diplomacy, with British resistance peaking in the Boudican revolt (c.60 AD), much of southern Britain, essentially the area of modern England, was under Roman control. Conflict in the form of rebellions and campaigns, and regular raiding skirmishes in both directions continued on the Western (Wales) and Northern frontiers (Scotland and Northern Britain) through the entire RIP and well into the Medieval periods (British Museum 2016a, Craik 1938:38-42, Dando-Collins 2013, Davies 2009:107-135, Dixon and Southern 2013:161-167). Relations between British tribes and Roman military groups, particularly cavalry troops, along continually volatile frontier border lines, probably led the formation of new groups with syncretic military Horseman identities

3.3 Medieval Historical-Political Impacts

The transitional period (c.5th to 7th century AD) between the withdrawal of standing legions in Britain, the Roman Empire collapse and the establishment of MED (Anglo-Saxon) culture has been dubbed the “Dark Ages”, due to the lack of written sources and the belief post-Roman Europe was a period of political and economic chaos. The generally accepted British/Anglo-Saxon history for this period is based primarily on the writings of the 8th century AD Northumbrian historian, Bede (c.735 (1903)).

According to Bede (c.735 (1903):Ch.12-15) in c.446-456 AD the Southern British were suffering from raids by the Picts (North) and the Scots and Irish (West). These raids were a continuation of early practices, which during the Roman occupation were combated by manned auxiliary forts and Roman legionary response. After the legions were withdrawn to preserve the Roman core from invasions by the Huns and other groups, aid requests by the Romano-British were denied. The Romanised British contracted European mercenaries (Saxons, Angles and Jutes) to fight their enemies. Because the

British were corrupt, God used the Germanic pagans to sweep them from the land, replacing them with the new British, the English who were then properly Christianised in the new Roman practices.

As Pryor (2004:97) notes, and a BBC (2000) history series presented, historians have generally persisted with Bede's version of history and have incorporated little from the archaeological sciences. The insular England built on Germanic invasions presented in the historical literature is very different from that indicated by the archaeological evidence. The evidence from a broad range of sources indicates continual interaction between Britain and Northwest Europe, and cultural continuation and resurgence in many areas of post-Roman Britain. Some examples of this evidence include shared pottery, burial practices, LIA coinage connections with the Belgic tribes of Europe, and gold bracteate and clothing parallels with Scandinavian and Merovingian Europe (Carver 2003, Carver and Evans 2005, Evans 1994, Hamerow et al. 1994, Gaimster 1993, Rogers 2007, Spink 1998:2-44, Zadora-Rio 2003). Bracteate (see Ch.4) and clothing evidence also supports LIA-RIP-MED cultural continuity (Rogers 2007:83, 107-110, 187-189). The different cultural/tribal/kingdom zones in Britain which correspond to MED kingdoms follow very similar lines to the LIA British tribal areas, which suggests both a long-term economic-geographic basis for East-West and North-South cultural differences and continuity between the LIA-MED cultures (James 1999:85). Rippon et al. (2015:1-47) also present comprehensive evidence for land-use continuity and also provide an excellent general review of the evidence for cultural continuity.

The archaeological evidence supports long-term interaction with Northwest Europe rather than the largescale replacement invasions of popular history. Long-term interaction and cultural continuation is also supported by genetic evidence (De Beule 2010, Thomas et al. 2006). McEvoy et al.'s (2004) studies also indicate shared ancestry is common throughout the Atlantic zone from the end of the last glaciation.

Evidence continues to accumulate supporting RIP-MED cultural continuity, so the popular historic tradition and Bede's *adventus Saxonum* was more an English origin-myth, perhaps related to the establishment of a new *Roman-*

Christian cultural identity (c.7th-8th century). Ideas of continuity and British-European interactions are particularly important in the investigation of the development of Horseman identities and the question of the origins of MED Horseman-burial.

The majority of known human-horse burials belong to MED England and have been considered essentially a variant of the Germanic weapon-burial rite discussed in detail by Härke (1990, 2004). North-west European Horseman-burials, interpreted as Germanic warriors and war-horses, were discussed in detail by Müller-Wille and Vierck (1970-1), with MED British Horseman-burials (c.40 sites, predominantly in the southeast) more recently discussed by Fern (2005, 2007, 2010) and Cross (2009, 2011, 2012). However, MED Horseman-burials occurred in many areas of Eurasia which suggests a more complex origin (Müller-Wille and Vierck 1970-1, Smith 1908:295, Annaert and Ervynck 2013, Róna-Tas A 1999, Bartosiewicz 2006b).

Considering the discussion above, the development of Horseman-burials and horse-depositional practices in early Britain need to be re-evaluated within broader time-frames rather than compartmentalised as IA, RIP or MED. There is telling evidence for LIA-RIP and RIP-MED cultural continuity which suggests MED Horseman-burial may also connect with earlier British practices and that other influences may be effecting the development of Horseman identities and depositional ritual in Britain and other areas of Europe with similar practices. This research shows horse and Horseman ritual was present in IA-RIP Britain and discusses a variety of influences which may have contributed to the formation of MED Horseman rituals.

MED Horseman funerary ritual may have its roots in RIP Eurasian interaction between native cultures and imported traditions linked with the Roman military. The movement of Eurasians via the Hunnic armies and Roman auxiliaries (particularly c.8000 Sarmatian cavalry into the Netherlands, Belgium and Britain) may have contributed significantly to MED Horseman identities (Southern 2012: xxviii). Roman impact is supported by the location of many RIP and MED horse-depositions and Horseman-burials, which often appear to parallel Roman frontiers or have Roman military associations (Lauwerier and

Hessing 1992) (see Section V). While Hunnic Eurasian impacts are illustrated in many of the sagas and myth-themes recorded by Sturluson (c.1222 (1916)), Saxo Grammaticus (c.1201 (1905)) and others (Görman 1993, Lindner 1981).

The revival of these heroic tales was probably a response to another Eurasian impact, the 13th century rise of Genghis Khan and his Mongol horseman. This period saw another peak in Horseman identities: the Age of Chivalry and the rise of the Knight-Horseman identity. Horseman identities, harkening back to a glorified Roman past, may have developed in Britain and Europe in response to the 5th century Huns (the same period 'Germanic' Horseman burials), and again in the 6th-8th centuries in response to the Avar expansions (Brulet et al. 1991, Caruth et al. 2005, Bartosiewicz 2006b, Hedeager 2007, Green 2015).

Huns, Avars and Mongols and related Eurasian steppe cultures are known for Horseman-culture, horse-ritual and horse-burial (Bartosiewicz 2003/2006a, Bede 2012). The description of Attila's funerary rites is very similar to the c.8th century AD description of the Germanic hero, Beowulf's funeral (Newton 1994, Puhvel 1983). These pastoralist cultures on the Eurasian borders, roughly northward from the Black and Caspian Seas, were an area of cultural interaction and warfare from at least the BZA onward (Chernykh 2008).

Another means of continual contact between Northwest Europe and Eurasian Horseman cultures was the ancient Amber Road, the Baltic-Mediterranean trade route (Zinoviev 2010). One of the most quoted descriptions of MED human-horse funerary ritual is the 10th century Viking-Rus funeral in Bulgaria along this trade route (ibn Faḍlān (c.921) 2012). The chief was burnt on a ship-pyre with a slave woman, two dogs, two cows, a male and female chicken, and two horses. The dogs, cattle and horses were dismembered before going onto the pyre. A memorial mound with a large post was built near the cremation site. This is a practice with many parallels in MED Europe, as well as in Britain (Bliujiene and Curta 2011, Bond 1996, Bond 2005, Bond and Worley 2006, Major 1924, Price 2003, Prummel 1992, Shenk 2002).

Interactions between Britain and these Baltic/Scandinavian areas, with its alternate route to the rich Mediterranean and Eastern cultures, became

increasing important to Britain in the post-Roman period. The failure of much Mediterranean sea-trade with Britain due to the 6th century AD Justinian plague would have encouraged even greater interaction with the Baltic. Many of these areas too, though not directly under Roman control, were highly influenced by Roman culture, particularly military culture transfused into these areas by border warfare, trade and the participation of men from these areas in the Roman military (Axboe and Kromann 1992, Rausing 1987). Those factors may have provided another source for a mixed native-Roman-Eurasian impetus for the development of MED horse-ritual.

3.4 Summary Conclusions

British horse-ritual and Horseman identities likely had roots within native IA cultures, as evidenced by horse-depositions and Horseman materials (see also Part V). For this study, increased interactions with Eurasian horse-cultures (Huns and Sarmatians) with Northwest Europe and Britain via the Roman military were probably of importance in understanding the development of new Horseman identities in RIP-MED Britain. Roman interaction also brought aspects of classical Greek/Macedonian Horseman ideals, belief-systems and identities which included the promotion of Alexander and Dioscuri cults among auxiliary cavalry cultures in Britain. The decline of Roman military power and the rise of Eurasian Hunnic Horseman power, with the highly visible exploits of the horse-lord Attila, likely influenced a rise in Horseman identities in the 5th century AD and the beginnings of MED Horseman-burials. The 7th-9th century rise of the Eurasian Avar horsemen and other pressures from eastern cultures may have influenced a revival of strong identity expressions including Horseman-burials such as those at Sedgeford, Sutton Hoo and others discussed in the following sections.

The wars of the Franks certainly brought interactions with the Eurasian Avar Empire and the expanding Moslem-Mediterranean Empire and promoted the role of the military-Horseman and the ideals of the past Roman military control in Northwest Europe. The Franks' new 'Roman' Empire no doubt influenced

military traditions in Britain. In addition, particularly along the Eastern and Western coasts, expanding Baltic-Scandinavian interactions renewed contacts with other groups practicing horse-ritual and burial. Some Baltic peoples, had similar native-auxiliary cultural roots as in Britain, and had continual contacts with Eurasian horse-cultures via the Baltic-Mediterranean river routes.

Chapter 4: Horse and Horseman - Identities in Imagery

4.1 Introduction

This chapter provides a framework for interpreting the horse-depositional practices which form the core of this study. Given the scarcity of written records, more prevalent iconographic sources provide important information about the concepts and expressions of British Horseman identity, and its sources, influences and development over time. As visual beings, imagery is very important and provide powerful clues to past cultures' values and ideals, and their perceptions of their own and other's identities (Keen 2002, Pilbrow 2002). Written records from other periods and places indicate the horse and Horseman identities were associated with the inter-related masculine pursuits of hunting, raiding, racing and warfare, and had many connections with divinity and power (Karras 2003 76-82, Kelekna 2009, Knight 1892:76-82). All these aspects went into the creation of Horseman identities in early Britain.

The main image components of a Horseman identity are obviously man and horse, but additional elements such as arms, spurs, special horseman-clothing, horse-gear, or vehicles may be present, and may substitute for the man or the horse. An example of harness implying the man is the funerary symbol of the rider-less horse, such as found on some Roman funerary imagery and in the Blackjack tradition for fallen American leaders (Patterson 2011). The elements expressing rank and levels of masculinity in Horseman imagery fluctuated within and between groups, and over time and geography, signalling different and changing cultures and Horseman identities.

Primarily British imagery is examined in this section for indications of rank, occupation (hunting/warfare), membership in an equestrian and/or equestrian-warrior caste, possible cultural/ethnic affiliations, and levels of masculinity in the portrayed human-horse relationships. Given the MED Horseman identity expressed by Horseman-burials, such as those at Sutton Hoo and Lakenheath,

are the most established, this section will start by examining MED Horseman iconography, then continue backwards chronologically.

4.2 Later Medieval Horseman Imagery

Horseman imagery in later MED Britain celebrated both the non-military huntsman and the warrior-knight. The horse, and associated attributes, signalled not only elite status and membership in a Horseman society, but differential personal standing within the group. During this period, masculinity was an especially important aspect of the Horseman identity and the horse was a focal point for displays of masculinity. The 11th century Bayeux Tapestry is a perfect example of later MED Horseman imagery displaying the attributes and interactions of the Horseman identity (Anon 2008, Oggins 2004:110-127).

The tapestry memorializes the events surrounding the Battle of 1066. The battle is seen by historians as a pivotal event in British history: the end of the Anglo-Saxon period and the beginning of Norman England, when William of Normandy (3rd generation Norse) killed the last Anglo-Saxon King, Harold, at Hastings (Morris 2013b). The textile mural is believed to have been commissioned by Bishop Odo, William's half-brother, at his lands in Kent and sewn by English women around 1077 AD (Musset 2005:16-17). The tapestry depicts a number of aspects relating to Horseman identity in English and Norman cultures. Individual differences in rank, position and levels of masculinity between horsemen are mirrored by their horses in the tapestry (Anon 2008:panels 2, 13, 53).

In strip 1 (Fig. 4.1) while all the horsemen are mounted, the highest ranking Horseman, Earl Harold, has the largest and most masculine horse. The stallion is given a heavy, arched neck (a secondary sexual characteristic) and prominently depicted complete sex organs. In contrast, the horses of Harold's followers are smaller, have less extreme necks and no visible sexual organs. The lack of genitals could suggest the horses are mares, or geldings (castrated and so unsexed), which in itself could express position, with stallions possibly

reserved for higher Horseman elites. However, the use of non-sexed horses is probably an additional illustration device to indicate the riders are less dominant (lower rank). The historical sources indicate a preference for male riding horses in this culture, making it unlikely the horses were females, or even geldings (see Ch. 9-10 for further discussion).

Besides the status and manly identity signalled by the Earl's overtly masculine horse, Harold has further high-status markers: hunting hawk, and his pack of hunting dogs. Huntsman and warrior aspects are interlinked; horse, dogs and hawk are the medieval trinity marking Harold as a lord and knight (Oggins 2004:110-127). Unlike the horses, dogs and hunting birds reflect class status in the tapestry but neither are used to reflect masculine identity (Fig. 4.1:strips 1-2). Both male and female dogs were used for hunting and hunting birds were typically the larger females (Oggins 2004:12).

Another Horseman marker is the wearing of spurs. Harold, and all but one of his followers, are shown wearing spurs, a symbol of a knight for many centuries. The earning of spurs became symbolic of knighthood, manhood and dominance in the later medieval period (Pilbrow 2002).

A set of scenes show Earl Harold arriving in Normandy as an envoy from King Edward and taken prisoner by Guy, the Count of Ponthieu, without Duke William's approval. The Duke's men arrive on very overtly masculine horses to admonish Guy (horseless) and take Harold to William (Anon 2008:panel 10). In the lower border a peasant driving a donkey points at Guy and in strip 3 (Fig. 4.1) while Guy maintains his falcon rank-indicator, his spurs are no longer visible and he rides a very odd 'horse' (Anon 2008:panel 13). Guy's 'horse' is non-sexed with little neck-crest and large ears, suggesting it is a mule and that Guy has lost significant status. In contrast, Harold has his elite Horseman identity intact (male horse, spurs and hawk) and William is the dominant Horseman with the greatest levels of masculinity, rank and military status displayed (hyper-masculine horse with most overt crest and genitalia, spurs, tasselled cloak, and sword).

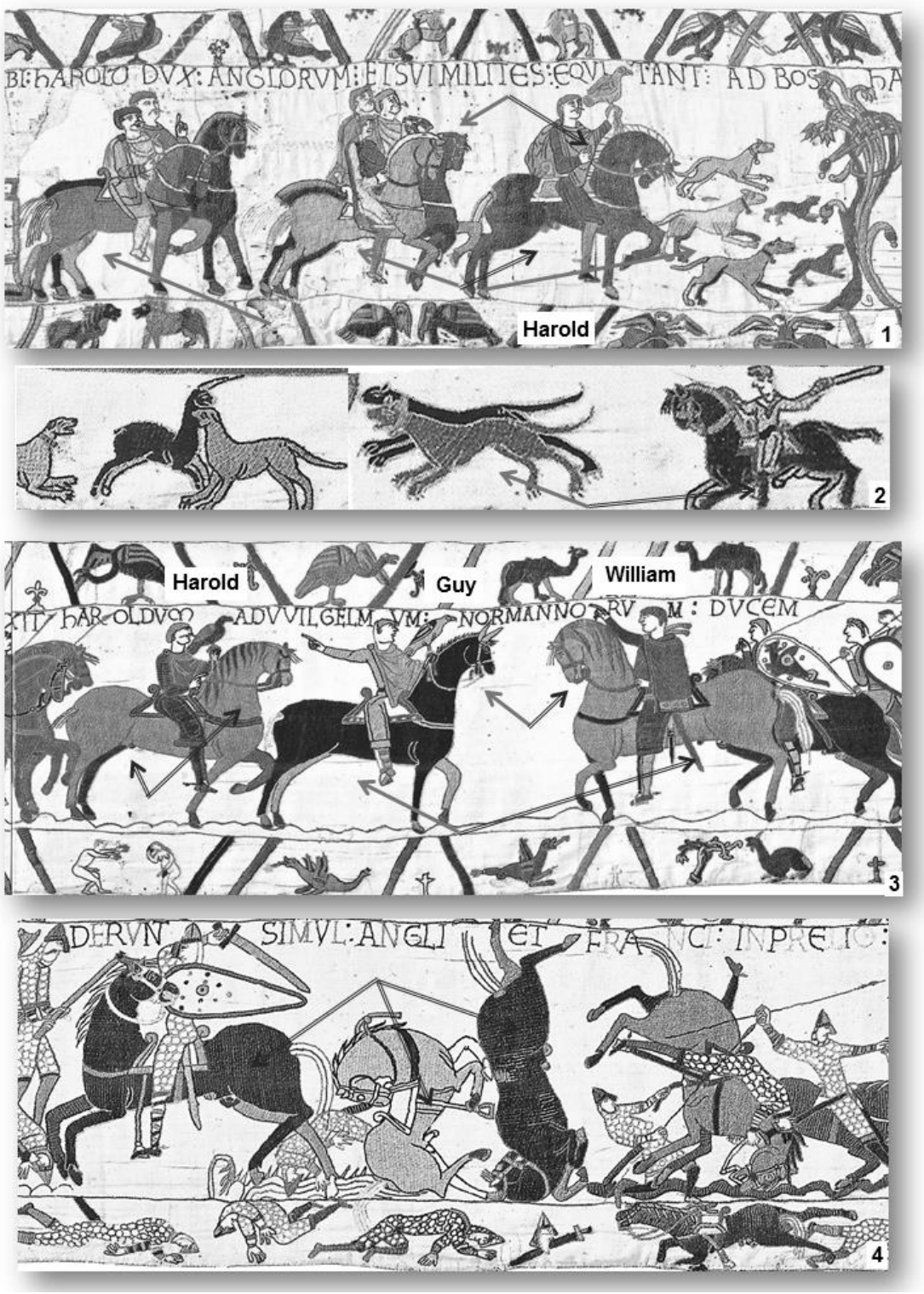

Figure 4.1: Rank, masculinity and identity in the Bayeux Tapestry. Horse and Horseman mirror levels of rank and masculinity. Horseman attributes: spurs, weapons, hunting dogs and birds. Horses display varying levels of masculinity (size, neck arch, displayed genitals) - emphasised (double arrows) or de-emphasised (arrows). (Anon 2008:panels 2, 13, 53; additional arrows and names by Author).

Mules were ridden by the clergy in many areas of Europe in the Medieval Period, so this may indicate Guy was a clergyman, though he was not historically identified as one, nor does he ride a mule in any other scenes (Bartosiewicz and Gyöngyössy 2006, Bennett 1995, Dent 1972:67-79). Also, Norman clergy did not limit themselves to mules, as Bishop Odo is portrayed later in the tapestry riding a hefty stallion, his clerical status displayed by his mace/cudgel in place of an edged weapon (Anon 2008:panel 54). Given the donkey and the mule imagery, Guy may still hold onto his Horseman-class membership, but his status, parentage and masculinity were denigrated and reflected in his mount (Brown 2009, Keefer 2011).

The tapestry shows both huntsman and warrior Horseman identities. In the non-military scenes (Fig 4.1, strips 1-3), the huntsman identity is also linked to individual expressions of masculinity and status which are mirrored by the horse (Anon 2008:panels 11-12). Even in the small border image of a huntsman (Fig. 4.1:strip 2), the horse is strong and dynamic with a heavily arched neck and prominently displayed genitalia. The Horseman-warrior (Fig 4.1:strip 4) is depicted as a hyper-masculine identity mirrored by overtly intact stallions (Anon 2008:panels 49-58).

The Bayeux tapestry is a fascinating example of MED Horseman imagery, but it is not the only example. Similar imagery (Fig. 4.2), from the 9th century AD and into the later medieval period, also suggests expressed masculinity was part of Horseman identities. Interpreting the meaning of fluctuating levels of expressed masculinity is more difficult with single images, but are probably linked, like those in the tapestry, to aspects of status, sovereignty/leadership and war.

The images in Figure 4.2 suggest overt masculinity was very important to the 12th century Norwegian Horseman-warrior and important, but not to the same extent, to the early (pre-1066 conflict) 11th century English Horseman-warrior (Fig. 4.2:A/C), while the two 14th century images of Horseman-Kings also show different levels of masculinity (Fig. 4.2:B/D). King John's mount (B) is portrayed as male, but the horse's masculinity is not especially emphasised, unlike the images of the Biblical kings (D). The differences may suggest differing levels of rank. All are crowned kings, though the Biblical kings were holy and the hunting

context secular. Historically, King John had conflicts with his earls and the Church, so potentially the image might intentionally depict a less than commanding monarch (Church 2007).

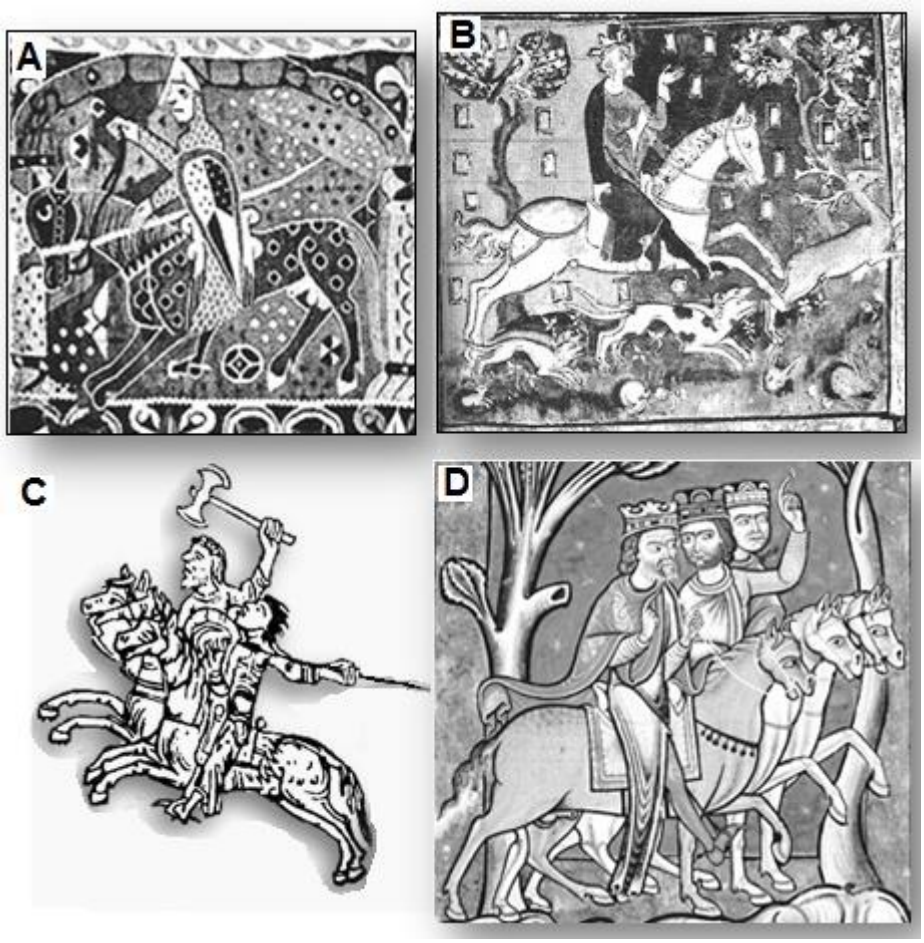

Figure 4.2: The Masculine Horseman in the 11th-14th centuries.
Horseman imagery of warriors, huntsmen and rulers reflect a link between portrayed horse masculinity and levels of status and position of individual and group identities, and also varies culturally and chronologically.
A: Norse knight, c.1100 Baldishol tapestry (Lenars and Corbis 2015).
B: King John hunting deer with hounds, c.1300 (Vincent 2016).
C: English warrior horsemen, c.1000 (Larson1912:88).
D. The Biblical Three Kings, psalter, c.1300 (Nortonius 2012).

Expressions of status, sovereignty and military function appear to have a link with cultural perceptions of masculinity in much of the iconography of the later

MED period. The Bayeux tapestry analyses indicate social and individual historical contexts are necessary for detailed interpretations of the symbolism in Horseman images. The Bayeux tapestry is particularly useful as it tells a story through multiple images for which there is reasonable historical background available. Most Horseman images from early Britain occur as single portrayals, which make them more difficult to interpret. This is only a brief discussion, but the imagery suggests visual masculinity was of importance in later MED Britain.

Levels of expressed masculinity varied during this period, with intentional individual symbolism, as in the Bayeux tapestry, and also possibly indicating different cultural identities. These images (Fig. 4.2) suggest a greater emphasis on portrayed masculinity in Scandinavian influenced art. Increasing conflict between Scandinavia and Britain may have influenced a greater emphasis on masculinity in Horseman identities and displays (Larson 1912b, Niles and Amodio 1989). If so, this may suggest Horseman-ritual and display generally increase during periods of conflict.

4.3 Horseman Imagery in the 6th-8th Centuries

The emphasis on equine masculinity in later MED Horseman imagery contrasts with much of the Horseman imagery from earlier in the study period. During the 6^{th}-8^{th} centuries, the horse's personal sexuality was not a focus in either hunting scenes or warrior scenes. Horseman identity did not apparently require overt masculinity when depicting the horse in the English south or the Pictish north (Figures 4.1-4.5). The Horseman portrayed followed similar warrior and huntsman motifs, but the emphasis was on expressing cultural and possibly religious identities. The Horseman images from Sutton Hoo in southeast Britain and those from the Pictish stones of northeast are discussed in this section in terms of how the imagery melded and re-interpreted earlier Roman period imagery with northwest European traditions and beliefs.

4.3.1 MED English Horseman: the Sutton Hoo Helmet

One of the most prevalent Horseman images is of a rider (man or god) trampling a foe (human or animal), epitomising the two most common Horseman variants: huntsman (expressed by the additional elements of dogs, prey and/or hawks) and triumphant warrior. The 7th century Sutton Hoo helmet (Fig. 4.3:A/B) from the elite Suffolk cemetery depicts the triumphant warrior trampling the enemy variant of the Horseman motif (Biddle and Kjølbye-Biddle 1985, Mayon 1947, Owen-Crocker 2004:125, 178-181). This motif is found on helmet-foils and bracteates from Britain and other areas of northwest Europe, and has particular links to Sweden and the 6th-8th century Vendel culture (Biddle and Kjølbye-Biddle 1985). The Sutton Hoo imagery is very similar to helmets from Vendel and Valsgärde, and also to the Pliezhausen bracteate (Germany), which may be a reused helmet foil (Arwidsson 1954:81, Pilkington 2012, Woolf 2014). Sutton Hoo, Vendel, Valsgärde and Pliezhausen are complex multi-period cemetery sites with rich burials involving mounds, ships and Horseman rituals (Carver and Evans 2005, Sjøvold and Lofgren 2013).

The 6th-8th century Horseman-warrior identity depicted is very different from that of the later period. Neither the horse nor the horseman were portrayed with overtly masculine characteristics. The Sutton Hoo Horseman (Fig. 4.3:B) is long-haired, clean-shaven and lightly accoutred without spurs, armour or helmet, but carries a full set of weapons: spear, short sword and small buckler. Interestingly, the foil imagery is at odds with the imagery of the helmet's facemask (Fig. 4.3:A), which portrays a warrior more similar to those of the Bayeux Tapestry (Fig. 4.2). Like the 11th century Earl Harold, the facemask portrays a moustached and helmeted warrior.

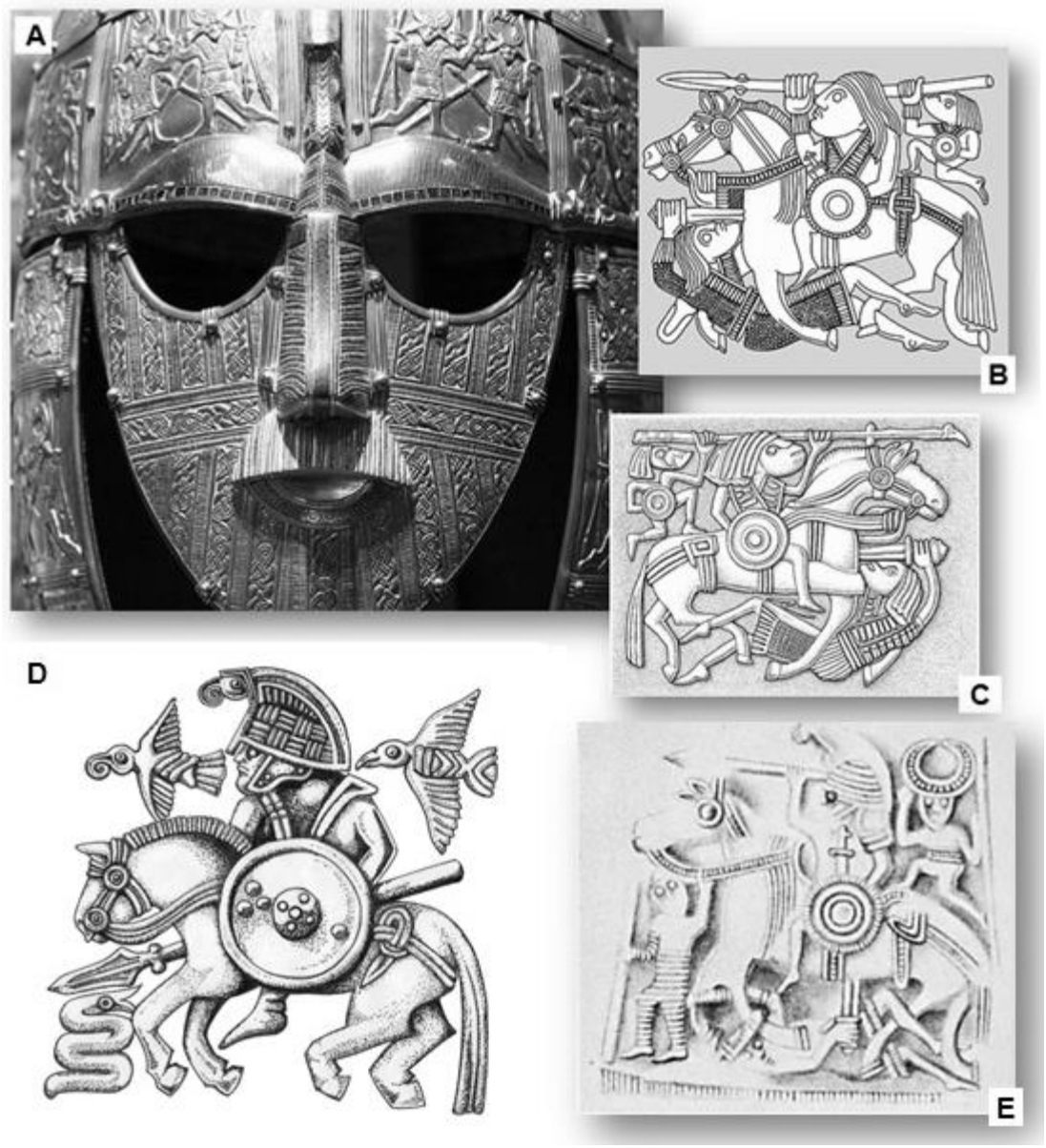

Figure 4.3: 6th-8th century Horseman imagery - present and past entwined. The Sutton Hoo helmet, with a Roman cavalry-style elements, a 7th century Horseman-warrior's face, surrounded by warriors, gods and magical beasts linked with earlier Roman and Eurasian tropes. A. Sutton Hoo helmet (Woruldhord 2016). B: Sutton Hoo helmet-foil (Kerr and Ford 2012). C: Pliezhausen bracteate (Kerr 2010). D. Vendel I helmet foil (Arwidsson 1954:81, Taf. 79). E. Valsgärde 8 helmet foil (Letting 2010).

The overall Sutton Hoo helmet represents a contemporary 7th century warrior, but the helmet-foils portray earlier imagery (Marzinzik and Carver 2010). The warrior has a discrete moustache, which falls between the clean-shaven earlier period and the increasing facial-hair associated with rank and age of the later

period. Particular hair-styles often signal identity, especially aristocratic, religious and military identities (Owen-Crocker 2004:18-20). Later historic examples demonstrate similar styles linked specifically with British cavalry (and the aristocracy). For example, the moustaches of the 18th-19th centuries, which were adopted in imitation of Hungarian Hussar traditions first developed during the Turkic-Balkan wars in the 15th century (Oldstone-Moore 2015, Rogers et al. 2010: 303-307, Tooth 2015).

According to Tacitus, clean-shaven with long-hair, as on the helmet-foils, was the warrior ideal amongst 1st century northern Europeans (Speidel 2004:156-161). The style was still in place among elites in the 5th century, as shown by Childeric's (d.482) signet ring. Childeric, the last officially pagan King of the Merovingian Franks, was given a Horseman-burial which included a rich jewellery, horse-gear, the Roman-linked signet ring, and a partial horse covered by a mound in a cemetery landscape with other ritual horse-burials.

The conversion of Childeric's son, Clovis (c.496), to Roman Christianity may have initiated the end of a clean-shaven style amongst the Frank elites, though none of the imagery showing Clovis as bearded is contemporary. Facial hair became appropriate from sometime in the 6th century (Owen-Crocker 2004:125, 178-181). By the 7th century long-hair and full beards were considered suitable for kings and short-hair with moustaches were applied among the lower elites. While some of the sources for these traditions are Merovingian/Frankish, there is much evidence for a long history of shared culture between the northwest European coast and eastern Britain (Geary 2010:113-121, Woolf 2014).

The same early clean-shaven and long-hair styles are evident on the foils, which supports the Horseman identity of the foils is different and earlier than the c.7th century date of the helmet and the identity portrayed by the facemask. The Horseman foils also show what appear to be mixed period imagery. One such aspect is the use of helmets by the figures. The lack of helmets on the Sutton Hoo Horseman and his foe, suggest 1st century AD cavalry imagery representative of the traditions of Roman foes, the barbarians who were northwest European warriors. The helmets worn by similar figures in the Vendel foils, however suggest northwest European helmets probably contemporary

with those worn by 7th century elite Horseman, but possibly also based on earlier heroic models of the 5th-6th century (Speidel 2004:162-170). The clothing of these warriors also does not follow the earlier Roman imagery, but is a Hunnic style introduced in the 5th century with the expansion of Attila's empire, and still in use in the 7th century (Hedeager 2007).

These foils made use of a design based in Roman auxiliary cavalry imagery, but with redefined aspects to emphasise northwest European traditions belonging both to a perceived heroic past and c.7th warrior ideals and realities (Axboe and Kromann 1992). In addition to the aspects discussed above, there are two more changes from the Roman period imagery which signify important signals of Horseman identity. The first involves the portrayal of the trampled foe and the second the portrayal of the additional figures.

In the Roman period Horseman imagery, the trampled foe was always portrayed as very different from the Horseman, a barbarian, and defeated without harming the triumphant Horseman. There was also often an additional smaller figure in the background holding spears, interpreted as a companion warrior, like a knight's squire, who supported the Horseman and resupplied him with spears (Speidel 2004:132-154). Caesar (1st century BC) was devastated by horse-stabbers near the mouth of the Moselle, prompting the Romans to bring native cavalry practiced in this type of anti-cavalry warfare into their auxiliary. Warriors able to jump from their horses and kill enemy horses on foot were feared and admired by the Romans, and renowned amongst the Danubian/Dacian and northwest European tribes.

The foe in the 6th-8th century foils and bracteates was no longer portrayed as utterly overcome and ineffectual (Spiedel 2004:145-146). Instead, foe and Horseman appear akin, similar in dress and identity, and most significantly, the 'foe' is shown successfully, probably fatally, stabbing the Horseman's horse. The 4th century AD Alamanni were famous for the skill, and the 6th-7th century Pliezhausen bracteate (Fig. 6.3:C) is from an Alamanni cemetery. This change in the 'foe' may signal new perceptions of identity which were conflicted about the supremacy of the Roman ideal. This new Horseman identity understood the

Roman portrayal of the 'foe' was their own ancestor, and recognised a dual ethnic inheritance as both horse-rider and horse-stabber.

Speidel (2004:145-146) suggests this horseman imagery came into Scandinavia via the Alamanni and the Horseman changed from the conquering Roman auxiliary to the Germanic warrior fearless even in the face of his fatal wyrd. Kleinschmidt (2003:66-68) interprets the imagery as indicating a belief, possibly resulting from an interaction between northern pagan and Christian religious paradigms, that the warrior alone cannot overcome and requires spiritual direction. The spiritual aspect is represented by the additional smaller figure; the companion warrior from the Roman period imagery is transformed into a god-figure in the foils. This period is certainly one of conflicting and intermingling faiths, and while Kleinschmidt cites other examples he believes indicate a similar melding of the lone pagan-warrior Horseman ideal with growing Christian influences. However, the argument is confused and Christianity is not the only source for a divine interpretation of the second figure.

There are indications in very early comparable Horseman imagery of the divinity of the secondary figure. Prior to the euhemerised 'squire' of the Roman period, the Letniza Horseman plaques (Fig. 4.7:A/B) from 4th century BC Macedonia (Bulgaria) parallel the same imagery with a divine secondary figure which obviously pre-dates Christianity (Metropolitan Museum Org. 2016; Rusev 2010). This similarity in imagery may indicate another link with Roman military Alexander cults. However, the most common interpretation of the c.7th century foil imagery is the figure represented Odin, guiding the warrior's spear in battle (Speidel 2004:145-146). Such an interpretation goes well with the idea of Odin giving his chosen heroes both a glorious triumph and death in battle.

A factor which argues a different emphasis is the portrayed large size of the Horseman and the much smaller 'god'-figure in the 7th century imagery. An interpretation which might explain the iconography better may be indicated by the substitution of the foe with a serpent-monster (Fig. 4.3:D). The serpent is seen by some as a melding of northwest European and Christian Mediterranean symbolism: divine knight (God/Saint) vanquishing the demon wyrm-serpent (Yorke 2015). But it has also been suggested the imagery symbolises

conflicting Roman and native 7th century northwest European identity constructs. These focus around the 1st century AD Hero-Horseman, Arminius, who was both native and Roman (an equites), and follows the Horseman trampling foe (giant-serpent) motif. The giant-serpent symbolised the legions with their serpent-standards of the world-threatening giant that was the Roman Empire. With this 'barbarian' interpretation, Rome becomes the slaughtered dragon-foe, trampled by the Horseman-hero Arminius in the forests of the Teutones. This interpretation has another parallel with foil imagery of death within victory by a kinsman horse-stabber, as Arminius both triumphed over the Roman-dragon and died betrayed to the Romans by his own people.

The Horseman of the foils, and similar bracteate images, appears to harken back to perceived Heroic Ages which conflated and mixed imagery from the Roman Empire and possibly the Alexander mythos with local northwest traditions of warrior-heroes (Magnus 1997). The Horseman portrayed could also be the dragon-slaying hero Sigurd of the Volsungs, (also called Siegfried in the Nibelungenlied). The historic Arminius story, restructured over time, and including elements from the rise of the anti-Roman Hunnic Empire in the 5th century, may have been transformed into the Sigurd mythos. The Sigurd story is easily one where a pagan god-hero with supernatural connections could be viewed ambiguously by early Anglo-Saxon Christians, and made into a bridge of shared mythos by pagans and Christians (Yorke 2015). Variants of the story include many thematic parallels with Biblical stories and with other northern myths such as Thor and the Midgard serpent.

Such a breadth of symbolism represented by the foil-Horseman and the Sigurd-Volsungr epic would appeal to a wide northwest European audience, and potentially represent groups with similar Horseman identities but varying religious beliefs. Another aspect of identity, advanced by Woolf (2014), is that these foils belong to Horseman elites living on frontiers, not those in settled or urban centres of trade and power. Britain was in many ways a cultural borderland between the growing Frankish-Continental (Christian) and Danish-Baltic (Pagan) hegemonies with their competing belief, linguistic and cultural

systems. Placing British cultures in a situation likely to engender heightened levels of identity displays, such as represented by Horseman-burials.

4.3.2 MED English Horseman: the Repton-Rider

Another English Horseman image, possibly from this period, is the Repton-rider (Fig. 6.4). This stone carving from Derbyshire also appears to have a melding of contemporary and early iconography (Biddle and Kjølbye-Biddle 1985). The Repton-rider wears mail, perhaps a helmet, and is moustached. These elements all suggest 7th century, or perhaps later, Horseman identity. He carries a round shield and weaponry similar to the Sutton Hoo foils, and wears a pleat-skirted tunic likened to Roman-wear, which are all elements suggestive of 5th century and RIP Horseman identities. The Biddle's (1985) argue the image is early 8th century, but no later than the 850's based on the weapon-set (long sword and seax) and lack of stirrups.

There are a number of similar and melded motifs present in the Repton-rider, including parallels with Pictish, Scandinavian and Roman imagery. The primary Roman motif is the *Emperor adventus* (triumphant arrival of the Emperor), which often used the trampling Horseman imagery. This was widely circulated and locally copied in late RIP Britain. The Biddle's dismiss a religious or general imagery, suggesting the stone depicts King Aethelbald of Mercia (d. 757).

The Biddle's (1985) interpretation of the Repton horseman is controversial (Karkov 2011:102-104). Certainly some of the dating elements are tentatively grounded. The 'long-sword' is mostly absent from the sculpture and could easily be a large spear similar to the Vendel horseman. If the weapon is a spear, the weapon set matches the Horseman-foils which are predominantly 6th-8th century (Speidel 2004:119-128). The lower legs of the rider are not preserved on the sculpture fragment, so a lack of stirrups is not really clear. Karkov (2011:102-104) agrees Roman imagery parallels are in line with Aethelbald's imperial England hopes, but feels the image was intended to present an idealised identity, a warrior-saint or god, perhaps Christ, rather than a specific individual.

Figure 4.4 The Repton-rider
MED Horseman imagery from Derbyshire.
(Biddle and Kjølbye-Biddle 1985:242, Fig. 3).

The Horseman is a central MED identity within elite levels of European cultures, so portraying Christ as a Horseman, a fusion of Christian and native ideals, particularly during periods was not unlikely. Christ the Horseman-warrior is presented in the 9th century Heliand ('Saviour') poem as warlord and the apostles as his warrior-band companions. The sheep and shepherds of the Middle Eastern nativity are transformed into horses and horse-guards, and Christ takes on an Odinnic character for the Sermon-on-the-Mount, sharing seidr-like magic ritual with his chosen warriors. The Heliand adapts the gospel to a heroic context familiar to northwest European Horseman-elites, a practice familiar to saga scholars regarding a number of biblical stories (Dreger de Araujo 2014). If the Repton-rider was intended to portray Christ and/or the

knight-saint, which became popularised in St. George imagery, then it may suggest the Horseman identity displayed is later than the 7th-8th century and perhaps closer to the 9th century date of the poem.

The Horseman identity mirrored by the Repton-rider's horse suggests some masculinity aspects consistent with the 7-8th century date given by the Biddle's (1985) and some with later periods. The horse body-type is generally slender and without an arched neck, but the horse appears to have genitalia. The available image is not completely clear, but the lack of any elements extending beyond the horse's bodyline on the near side supports the shape is intended to represent the horse's genitals and not some accoutrement hanging down on the far side. Displayed horse genitals may also suggest the Repton Horseman is 9th century, but such analysis needs a greater sample to make such trends clear.

4.3.3 MED Northern British Horseman: Pictish Imagery

Similar changes in the Horseman identity are evident in the iconography of Eastern Scotland and Pict culture. The Pictish stelae are linked with Christian and pre-Christian symbolic imagery and proliferated c.7th-10th century. Horseman images are prevalent, with more than 30 examples (Hughson 1992). The stones portray both the Horseman-huntsman (with dogs and deer) and Horseman-warrior (with spears, shields and helms), sometimes intermixed (Reid 2014). Earlier horsemen (Fig. 4.5A/C) ride sleek horses often moving at a high-stepping trot or pace, with no overt sexual characteristics.

The lack of obvious male attributes in the horses, as discussed above, could mean the horses were females or neuter-males, but is more likely reflecting culturally-based differences regarding expressions of masculinity as part of the Horseman identity. Similar to the English imagery, there is a trend of increasingly masculine horses over time (Fig. 4.5B/D). Horses in the later period are portrayed as muscular with aggressive expressions, larger heads, greater neck-arch/crest, and possibly displayed genitalia. While it is not completely

clear, due to damage, the horses on the Kirriemuir 2 stone (Angus) may have originally included the male genitalia of these horses (Fig. 4.5B/D).

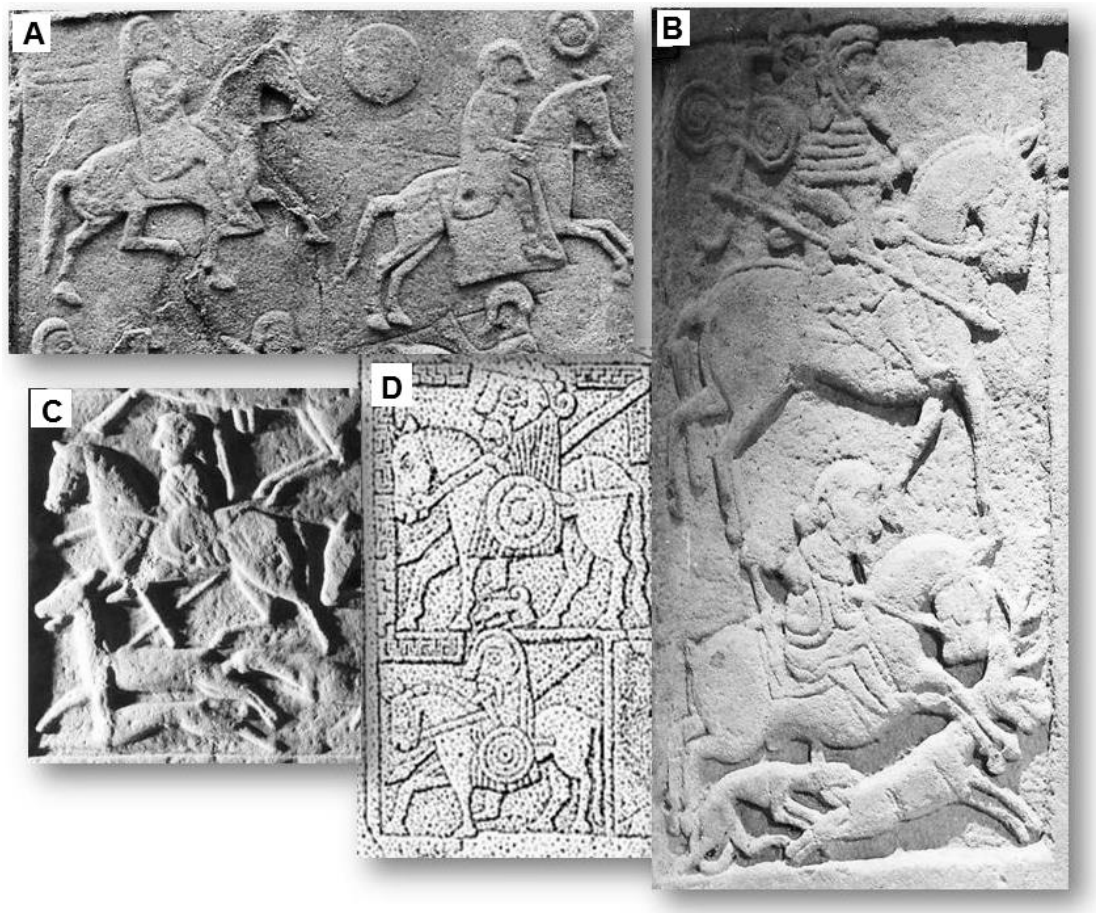

Figure 4.5 MED Horseman identities in Northern Britain, 7th-10th century. Horseman-warriors and huntsmen on Pictish stones show recurring themes, but displayed horse masculinity varies over time. 7-8th century undisplayed sexed (A/C). 9-10th century more overtly masculine (B/D). A: Aberlemno-2 detail enhanced by author (Greenshed 2007). B. Kirriemuir-2 (Munro 2010b). C. Hilton of Cadboll detail enhanced by author (Munro 2010a). D. Benvie (Borland 1908).

The riders also echo English fashions: warriors with moustaches and chiefs/kings with beards. The Kirriemuir and Benvie imagery are most similar to the Repton stone, and both are dated 9th-10th century (Laing 2001). The Benvie

stone shows particular similarities with the Repton stone, with both including mixed anthropomorphic and serpentine imagery on their reverse sides. The serpentine imagery may indicate connections with the Sigurd mythos and earlier serpent-giant imagery associated with RIP military/religious imagery (see also 4.4). The Isle of Man Kirk Andreas cross (c.10th century) also has similar motifs and has been interpreted as portraying the Sigurd tale (Black 1887).

The Pictish stones also display Christian themes which, like in the Heliand, were transformed to conform with British elite Horseman identities. The Aberlemno-3 and Hilton of Cadboll stones (8th-9th century) show nearly identical scenes of Christ (not a Pictish Queen), transformed into an elite Horseman lord rather than humble donkey-riding prophet, entering Jerusalem (King 2014).

Reid (2014) suggests varying rank was also portrayed on the earlier stones via size and horses' gait. Ignoring perspective and portraying more important figures as larger has a long tradition. Reid's (2014) hypothesis regarding differences in gait may also have good grounds. The exaggerated trot portrayed on Pictish stones is typical of special gaits developed in horses for elite plantation/farm owners to provide a comfortable and showy ride for long travel. The development of similar breeds (Hobbys, Palfreys, Walkers, Tolters), is described in Britain, Ireland, Iceland, Spain, and the modern Americas (Hendricks 2007:230-233, 412-415).

4.3.4 Summary of Later MED Horseman Imagery

The 6th-8th century Horseman imagery of eastern Britain, both from northern Pictish and southern English cultures, share common themes and styles with contemporary c.7th-8th century Scandinavian cultures. All the images examined mix religious with Roman military aspects, which can be associated with imperial and auxiliary cavalry identities (Biddle and Kjølbye-Biddle 1985, Carver 1998:27-38, 120-128, 169, Laing and Laing 1984). The Horseman imagery of the helmets conserves and invokes a Heroic Age of warriors and warrior-gods, and may signal an interweaving of native and Christian religions. The statuary

images have similar themes, with those of north Britain, which had longer contact with Irish Christianity, taking more obvious Christian themes but still translated into local cultures. The Horseman-warrior/ruler identity was of consistent concern to certain peoples of eastern Britain.

4.4 Early First Millennium AD Horseman Imagery (LIA-RIP)

Horseman Imagery in Roman Britain focused on cavalry themes and sites, and was dominated by the Horseman-warrior (god/ruler) trampling the enemy motif, but also featured the horse-goddess, Epona. Horseman imagery featured on cavalry funerary-stelae, dedication columns (Jupiter-pillars) also possibly related to cavalrymen, Epona statuary, coins, phallerae and bracteates. There are obvious ties with the Roman imperium in the Horseman iconography, and strong links with RIP auxiliary cavalry identities (Hope 1997/2003).

These cavalry identities appear to reflect merged group identities incorporating Roman military themes with local British and European beliefs from peoples sourced for the Roman auxiliaries such as Batavians and Frisians (Netherlands), and Pannonians, Dacians, Sarmatians and Thracians (Danube/Black Sea area). That Roman auxiliary troops intermarried and settled with natives and created communities is well accepted (MacMullen 1984, Derks 2004). These auxiliary units formed insular sub-communities composed of British, Eurasians and mixed peoples. These cavalry people had a strong horse and military centred culture within a Roman context, but one not necessarily part of the local or mainstream Roman culture or attitudes. The later use of similar imagery suggests identification with these same groups, and a mixed attitude towards Roman versus native ideals.

4.4.1 The Horseman and the Horse Goddess: Epona

Epona is commonly described as a Celtic goddess of horses whose imagery, generally a seated Lady with small horses (foals?), suggests fertility (Aldhouse-Green 2004, Brown 1950, Dent and Goodall 1988:7-36, Linduff 1979). Webster (2001) suggested Epona was the merger of a native (Celtic) horse goddess, probably in the form of a female horse (mare), with Roman religious views which emphasise anthropomorphic gods. The name Epona is potentially a fusion of northwest European (Gallic-Germanic-Celtic) and Roman-Latin etymology. The Gallic *Ech/Iko/Ig/Epi* forms for horse combined with the Latin *Puella/Pullum* words for girl and foal (young horse).

While the literature suggests a Romano-Gallic etymology, it is possible the etymology is purely Celtic-Gallic. The *Ep* for horse combined with the Gaelic words *Úna/oona* for girl and young animal and/or *Áine* an Irish goddess of fertility. Áine, a daughter of the sea-god Mannanan Mac Lir, married the son of Eoghan/Eochaidh Mor, whose name means Great Horseman. Such a divine marriage of a water/fertility/sovereignty goddess with the Horseman-King may have been part of the underlying mythos of Epona. Such an interpretation could link the goddess with the Northern Irish horse-sacrifice/kingship-ritual described by Gerald Cambrensis in the 12th century, which involving the mating of the new king with a sacred white mare that was then sacrificed and consumed (Ellis 1999:137-144, Fickett-Wilbar 2012). Either a purely Celtic *Ep-Oona/Aine* or the Gallic-Roman *Ep-Puella/Pullum* would form names implying much the same meaning as interpreted for the iconography: a goddess of horses. If the name and initial goddess was purely a Celtic construct, the anthropomorphised imagery came with the Roman Empire and was probably linked to Roman, and potentially Eurasian auxiliary peoples, attitudes toward corporal imagery.

Epona has no known pre-RIP existence, but became popular throughout the Roman Empire in the 2nd to 3rd centuries, a period rife with the development of syncretic native-Roman religious cults (Aldhouse-Green 2004:228-232). Existing local horse-goddess(es) probably underlie the RIP cult, and may have featured an unembodied female divinity and/or one embodied as a horse which was anthropomorphized under the aegis of the Romano-Greco traditions

pervasive throughout Europe during this period (Green 1998, Linduff 1979, Webster 2001). The goddess was evoked in racing stables and pictured on various stelae found in Britain and Europe, mostly associated with the Roman auxiliary cavalry (Dent and Goodall 1988:7-36; Webster 2001).

In northwest Europe, Epona monuments were concentrated around the frontier borders: along the Limes and the edges of Roman-controlled Britain (Linduff 1979). The imagery of a Queen-Goddess enthroned, often with other symbols are identified with harvest and fertility (horse-breeding?), but the contexts, racing-stables and cavalry-outposts, suggest Epona's function was perhaps more one of luck and protection (Aldhouse-Green 2004, Brown 1950). If one of Epona's main attributes was the welfare of horses, her imagery within cavalry and racing stable contexts is understandable. Certainly agencies of good luck and protection were/are always popular with soldiers, and a cavalryman's life often depended on the well-being of his horse.

Epona may have also incorporated aspects from the Cybele cult, again via Roman, probably cavalry influences. The standard Epona iconography of a horsewoman seated side-saddle, such as those found on 1st century AD British Cunobelinian coins, and other horsewoman coins have been linked with Cybele (Green 1998, Leins 2007, Mackintosh 1995:33-36, Morris 2013a). The associations with Cybele, an anthropomorphism of the earth, also suggest fertility and protective functions, and also a broader function, one which may be illustrated by a connection with Rhiannon. The stories of Rhiannon, the White Mare goddess of the Welsh mythological cycle, are full of horse, sacrifice, kingship, and Horseman imagery. Ideas of sovereignty, sacrifice and white mares also link with the Irish Áine-Mannanan and kingship-horse ritual discussed above. Hemming (1998) calls Epona an equine sovereignty goddess, only adopted by the Roman auxiliaries because of her association with horses, but not originating within their subculture.

While the Epona cult probably originated within native Horseman subcultures, it was adopted and probably modified within the auxiliary cavalry subculture where a synthesis of Western European and Eurasian (Sarmatian, Thracian, etc.) beliefs could easily have occurred. The Roman wars regularly moved

groups between the northern European and Eurasian frontiers, which brought together Horseman peoples with different, but compatible beliefs within the limited and distinct cultural group of the cavalry troop.

While high-ranking leaders continued to move between locations, many of the auxiliary units were settled along the frontiers longterm and created mixed native-auxiliary cavalry communities (Axboe 1992). These communities' identities would meld local and auxiliary beliefs modified by Roman cavalry ideals, forming distinct Horseman identities within these syncretic communities. Group Horseman identities would have been cemented by generations of cavalry service. Such distinct identity development between the cavalry auxiliary groups associated with northern frontiers (Asturienses, Petriana, Sarmati, Thracian, Tungrian and Panduring) and local British tribes, many from the Brigantes confederation (including the Parisi) and Scottish borders, may have initiated in the 1st-2nd centuries, and were likely well established by the 3rd-4th centuries. Such hybridized 'tribes' may be epitomised by the Votadini/Uotadini (Dent and Goodall 1988:42-45).

The Votadini are recorded in Ptolemy's 2nd century *Geography* as occupying the region between the Antonine and Hadrian Walls (Petch 1994-5). This group was associated with Traprain Law Hillfort, the Roman fort at Newstead and another native group called the Manau (Fraser 2009):15-25. While the fort at Newstead was abandoned c.210 AD, this was after c.100 years of fort-native interaction (Curle 1911:340-346). The presence of a 2nd century Voconti regiment at Newstead may link this group with the Votadini tribal group also linked with the area (Collingwood et al. 2014j, Collingwood et al. 2014k). The names and shared presence suggest the Votadini and Voconti may represent a merged native-auxiliary cavalry community. The alae Augustae Vocontiorum was sourced from Narbonensis, a Romanised region of Gaul with a strong Hellenic identity, and the Voconti had a strong Horseman and not entirely Romanised identity (Arnold and Fiddes 1906:100-103;119-120, Mommsen and Dickson 1906:119-120). Hellenistic (Thracian/Macedonian) military traditions often focused on Alexander, which may indicate Hellenistic auxiliaries may have been a significant influence in Roman auxiliary Horseman imagery.

These new communities persisted for generations and were potentially distinct enough to have moved as complete groups, as suggested by Gododdin-Votadini tradition. Welsh heroic literature says the Votadini moved from southeast Scotland into Cumbria and Northern Wales sometime in the 5th century to aid other auxiliary groups, becoming the Gododdin/Guotodin Horseman-warriors of Strathclyde and establishing the kingdom of Gwynedd in mid-western Britain (Fraser 2009:41, Dent and Goodall 1988:42-45, Jones 1997). The Gododdin leader's name, Cunedda, may be equivalent to Gwynedd and related to the Roman military term for a cavalry wedge-formation: "cuneus" (Petch 1994-5, Isidore and Throop (c.650 AD) 2005:34, 53). Aspects of this tradition may also link with the divine-marriage of the deified land (new kingdom of Gwynedd) and the Horseman from the sea (Roman auxiliary Cunedda). The horse-ritual (see Ch.8/11) and the goddesses of the parade-ground at Newstead may also link with the Epona cult (Collingwood et al. 2014j).

The goddess as the deified land and sacred marriage (land-Horseman) may link with the sovereignty aspect of Epona. These ideas may reflect native-auxiliary interaction. Traditions of feminine land/river spirits mated with a Horseman-god, are found in the Dacian and Thracian Rider cults and Romano-Hellenistic traditions of Poseidon-Demeter (Roman Neptune-Ceres) and the divine horse-twins, the Dioscuri (Knight 1892:80, Johnston 1992, Dexter 1990, Atsma 2011a/b/c). These traditions could have been introduced via interchange with auxiliary cavalrymen stationed in, or returning to Britain. Thracian imagery from modern Bulgaria is rich with both Epona and Horseman imagery (Fig. 4.6).

The union of Demeter-Hippia in the form of a mare and Poseidon as a stallion produced a divine foal, Arion, and a local goddess, the Despoina (the Lady), who's name was only known by a select priesthood (Atsma 2011a, Dexter 1990). Demeter and/or her aniconic/unnamed daughter may have contributed to the makeup of Epona. The British coins of Cunobelin (10-40 AD) suggest knowledge of Demeter and her myths. The coins show a horse on one side and an ear of wheat, symbols of Demeter and the Eleusinian Mysteries which included significant aspects of death and rebirth (Atsma 2011b, Portable-Antiquities-Scheme 2016). Demeter was a symbol of sovereignty, motherhood,

protection, grain and the mother of the divine horse Arion and his mysterious sister. These classical myths fit well with Epona imagery and associated mythologies and may help interpret some of the horse-oriented rituals and sacrifices which can be observed archaeologically (see Ch.5 and Parts IV-VI).

Figure 4.6 Epona and the Danubian/Thracian Rider, 1st-2nd centuries AD. Stelae showing both the Horseman and the Horse Goddess and/or Dioscuri and Goddess trinity, from Augustae on the Danube, modern Hurletz in NW Bulgaria (Paunov 2012).

There is little historical data regarding early horse-ritual. One of the main accounts of horse-ritual typically used to explain the origins and functions of horse-sacrifice is the BZA-IA Vedic Asvamedha from India (Karmarkar 1949). The Asvamedha personified conquest of the land via a stallion set to roam the land for a year accompanied by 400 warriors, then bathed in a sacred pool and sacrificed by the king. The ritual symbolised the merger of man and horse and the highest sacrifice (the horse then proxy for the king) to honour the gods, maintain cosmic order and deify the living king. This ritual of kingship included symbolic intercourse between the sacrificed stallion and the queen. The Asvamedha is distant in time (LBA, though related rituals recurred in MED India), but there are many parallels with Hellene (Poseidon's origin), Thracian and British-Irish traditions, and much of the iconography suggests Epona was part of similar traditions (Fickett-Wilbar 2012, Zaroff 2005, Dexter 1990).

The 12th century Welsh account of Ulster horse-sacrifice (see above) suggested it was a contemporary practice in, presumably, Christian Northern Ireland. However, it may record earlier rites which combined ancient Irish Macha traditions and Scandinavian rituals, as the main points resonate strongly with 10th century Scandinavian kingship (Hakon) and Yule rituals (Aðalsteinsson 1998:64-74, Sturlson and Laing c.1225 (1844)). Both included consumption of sacrificial horses (broth/meat). The texts specify these sacrificial rites and the consumption of the horses were necessary to honour the gods, insure land-fertility and confirm sovereignty. Horse-fighting and horse-racing were also often part of the associated festivals, and may have contributed to the choice of sacrificial animals (Martin 2003). Archaeological finds of disarticulated and butchered horse-bones at sites such as Sedgeford and Broxmouth (see Part V), may suggest similar British horse-feasting practices (Cross 2009, Cross 2011).

Epona (Fig. 4.6, 10.1), can be associated with a wider tradition of horse-ritual and Horseman-related gods. These traditions would have had a powerful appeal in the new communities created by the literal unions of horsemen and Roman auxiliary horsemen. In such communities, Epona may have symbolised both local continuity and the generative power of new syncretic communities with cultural, social and personal Horseman identities.

4.4.2 Horse-Lords and Horse-Gods: Horseman Trampling Chaos?

During the RIP, the primary Horseman imagery was the Horseman trampling the enemy motif, which was strongly associated with Roman auxiliary cavalrymen (Hope 1997/2003). This motif is found on the 5th-6th century phalerae and bracteates, and the 6th-8th century helmet foils already discussed above, and in this earlier period, on c.1st-2nd century AD auxiliary cavalry memorial stelae and 2nd-3rd century Jupiter-pillars. The motif is generally traced to first millennium BC imagery (Fig. 4.7), particularly the Greek funerary-stelae of the Athenian cavalryman, Dexileos (4th century BC), but it can also be found in 4th century BC Thracian imagery, such as the horse-harness panels from the Letniza treasure, and was generally linked with the rise of divine horseman cults including Alexander the Great (Bonfante 2011:Plate VIIIA (Fig.6.7), OMDA 2016b, Mackintosh 1986, Speidel 2004:139, Duruy 1898:511).

The Horseman trampling the enemy regularly appeared on the funerary-stelae of auxiliary Roman cavalry troops in Britain (Fig. 4.8), and probably had connections with the Horseman cults of the Dacian-Pannonian areas. Many auxiliary cavalrymen in Britain may have spent considerable time in these areas, particularly during the Dacian-Sarmatian, Parthian and Marcomanni wars (Fields 2006:4-12). The British sourced auxiliary cavalry unit, the Flavia Augusta Britannica milliaria, was used extensively in the Dacian-Sarmatian wars (Gazdac 1997).

Roman cavalry culture was based in ‘Barbarian’ horseman personnel and expertise, groups of men who committed to 25 year contracts and so probably spent the majority of their lives within Roman service (Fields 2006:6-15, 26-29, 42-57). On retirement many of these men may have stayed in Britain with their British families in their own communities. Returning British-born cavalrymen may have also found these cavalry communities more comfortable than civilian communities or may have come from such communities originally.

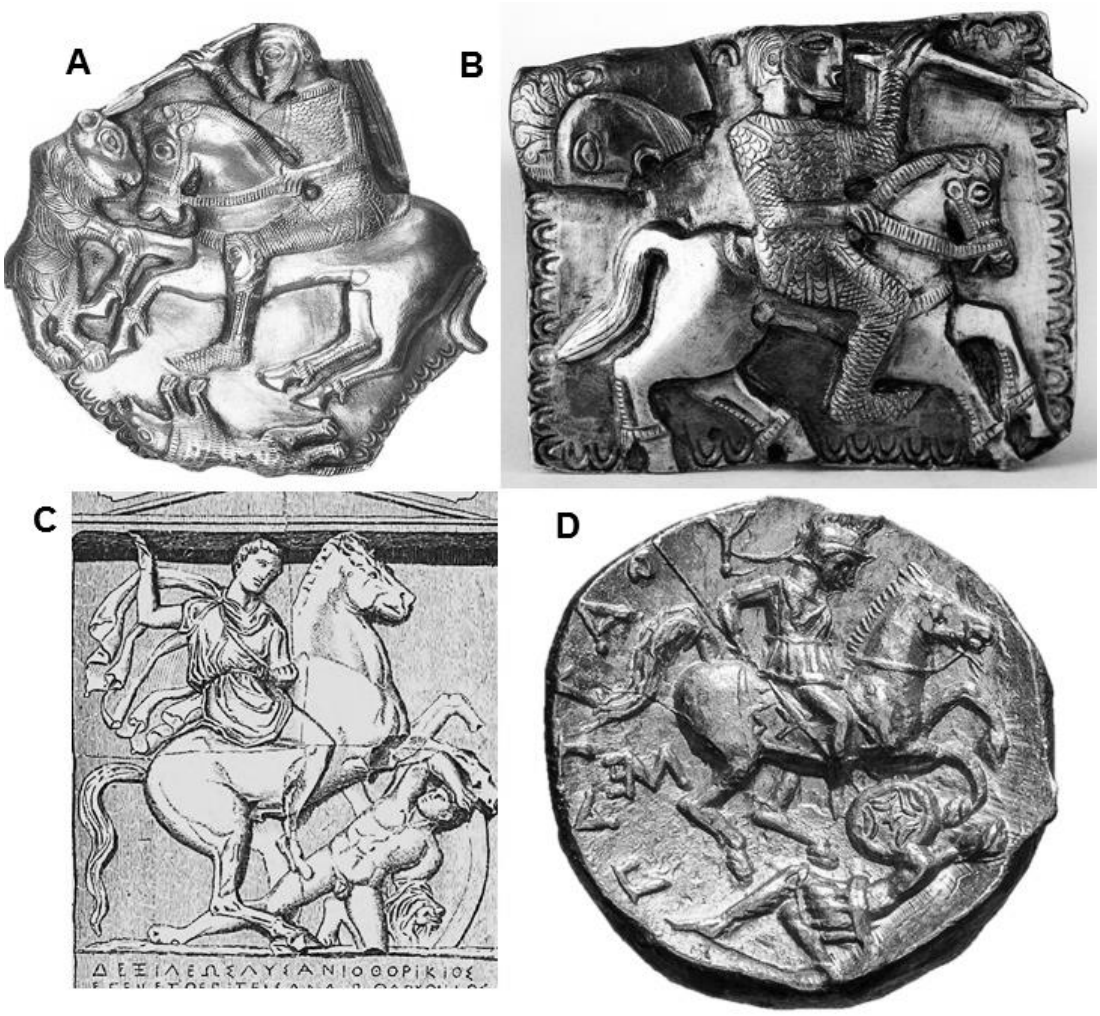

Figure 4.7 Horseman trampling enemy imagery, 4th century BC.
A-B: Letniza treasure Thracian Horseman plaques from horse gear (OMDA 2016a, Rusev 2010).
C: funerary-stelae of Athenian cavalryman, Dexileos (Duruy 1898:511).
D: Paeonian Hoard coin (Berk 2016).

The inscriptions of these funerary-stelae, illustrate these points (Collingwood et al. 2014a; Kramer 2014:43, 51-53, 71). The syncretic nature of the auxiliary cavalrymen is demonstrated by the stela of Sextus Valerius Genialis, who died in Cirencester. According to the epitaph, his first point of identity was his regiment, the Thacians (modern Bulgaria), secondly to his tribe of origin, the Frisia (Netherlands), and thirdly his troop, from which he also took his surname. He claimed the additional identity as a standard bearer, as does the stela of

Flavinus (Fig. 4.8B).This stela, similar to others found in Britain, was erected by his heirs, indicating he had an established family in or near Corinium. He is depicted in the classic format: Horseman trampling and spearing the vanquished enemy (Fig. 6.8C).

Flavinus died at age 25 in the late 1st century AD, in the northern British borders near Corbridge (Northumberland), having been in service since he was 18 years old (Kramer 2014: 69-70). The horseman on Flavinus' stela rides a horse with decorative phalerae, wearing his parade best and a sheathed sword. His only stated identity was as the standbearer of the Petriana cavalry in the troop of Candidus. The young man's stela does not mention heirs, so he may have been honoured by his unit. The Petriana was also involved in the Dacian Wars (Gazdac 1997).

The stela of Insus (Fig. 6.8A) was found in Lancaster and is a similar period as the Genialis stela (Kramer 2014:71-73, 162). Insus wears a parade-style helmet, but without the facemask, which is probably the type upon which the later British and Scandinavian helmets were modelled. His horse wears harness with decorative phalerae. The Horseman trampling the enemy motif varies in this example by depicting the enemy decapitated. His inscription indicates he identified himself firstly as the son of Vodullus, secondly as a tribesman of the Treveri (Trier, Germany) and lastly by his regiment and troop. The head-taking may associate him with the Dacian-Sarmatian Wars where the practice is illustrated on Trajan's victory monuments: the Tropaeum Traiani in Dacia (modern Romania) and Trajan's Column in Rome (Fields 2006:52; Spiedel 2004:3-6). Trajan's Column shows Romans taking Dacian heads in at least two scenes during the first Dacian War, c.101 AD (Ulrich 2015b).

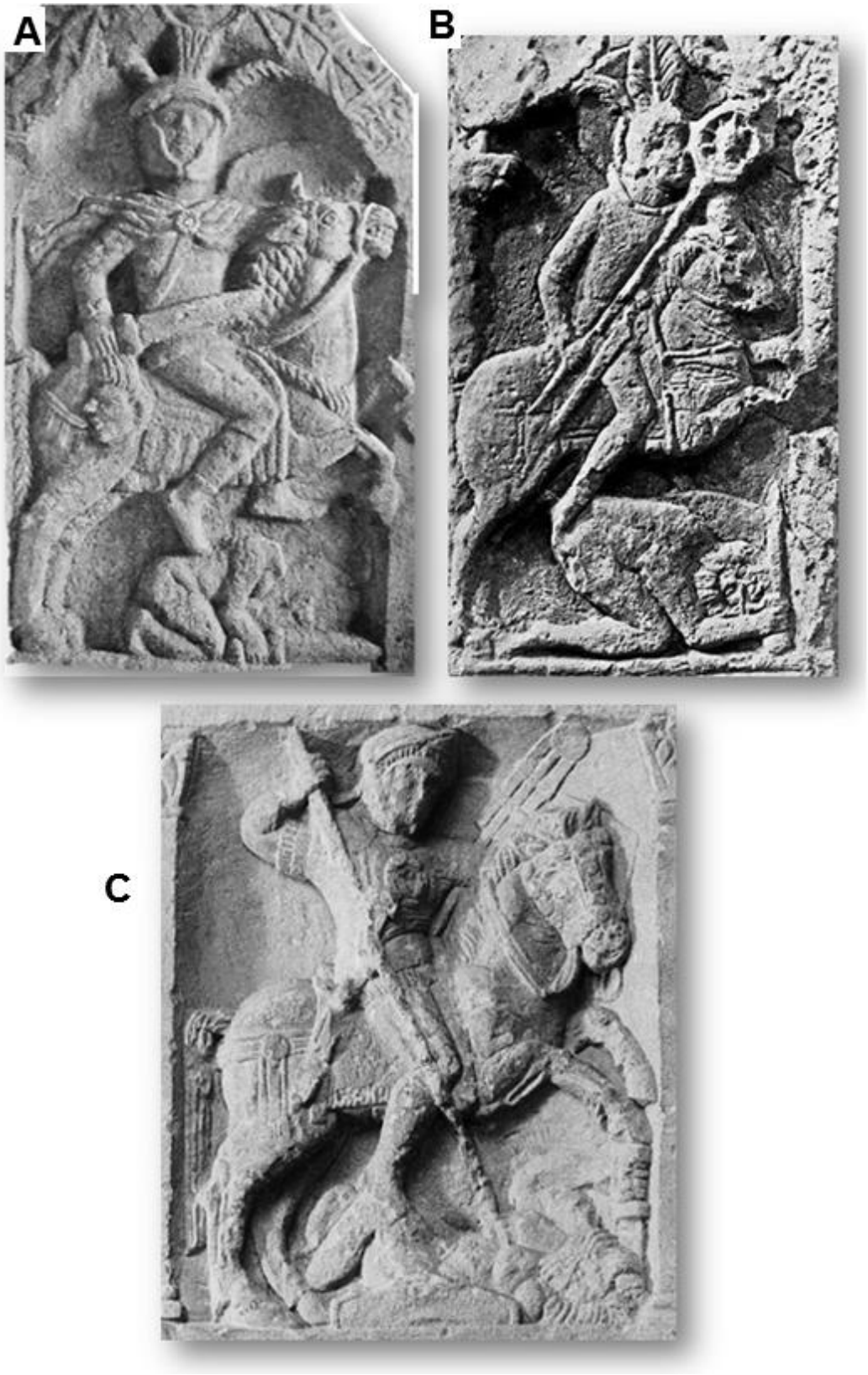

Figure 4.8 RIP British cavalry Horseman stelae, 1st-2nd century AD.
A: Insus, son of Vodullus, c.75-120 AD, Lancaster
B: Flavinus, c.79-98 AD, Corbridge. (Hodgson 2015a)
C: Sextus Valerius Genialis, c.90-124 AD, Cirencester
(Collingwood et al. 2014b). Also see Kramer (2014:43-72ff).

Kramer's (2014) study on Roman cavalry stelae and identity included an analysis of fifteen British funerary stones. Her interpretation of these is brief and general (Kramer 2014:160-164). The horseman trampling the enemy imagery is seen as indicating heroic victory over death, which is unsubstantiated. There is no indication death is vanquished, only that these horsemen were warriors, heroic in the face of death. While the horseman trampling imagery is often interpreted as good/light triumphing over evil/dark, in the context of cavalry mortuary expression the horseman and foe may be intended quite literally to represent the deceased's identity as a Horseman warrior whose role was to subdue and kill his foes.

Interestingly, Kramer notes the British stelae appear to have more variation than those from Germany and Syria, but offers no possible reasons for the high variation. She also notes the stelae include symbols indicative of an expectation of an afterlife, a desire for protection against evil spirits and some suggesting possible membership in the Mithras cult. All of the inscriptions she examined showed the importance to these men, and their communities, of their identity as horsemen of specific cavalry units. Overall, the symbolism related to their individual identity as cavalrymen and heroes.

4.4.3 Jupiter-Pillars: The Horseman, Gods and Monsters

Another type of Horseman imagery popular during the Roman period commemorated not the dead, but gave thanks to the gods for continued life and success: the Jupiter-pillars (Fig. 4.9). The Jupiter-pillars were complex structures which included a base, altar, pillar and Horseman-Foe figure. These statues were created as fulfilments of vows and often related to the battle success of a variety of individuals during the 2nd-3rd century A.D (Woolf 2001). The prominent image portrayed in the crowning statuary is a lightning god horsed and trampling a figure, often half humanoid and half serpentine (Fig. 4.9). The tableau is often described as a scene of gigantomachy, the battle between the gods and giants, derived from Greek mythology, but also a common theme in the Roman period (Ambrose and Henig 1980, Dodd 2014).

The Horseman is generally identified as the sky-storm god Jupiter, the ruler of the Roman pantheon, while the foe is described as a giant, a monster, an anguiped (snake-footed humanoid), or a spit-tailed triton (Ambrose and Henig 1980, Dodd 2014, Woolf 2001). All of the possible 'foe' creatures have complex past interpretations tied with earth and underground symbolism or, in the case of tritons, earth-water-horse symbolism. The god Triton was the son of Amphitrite, the sea, and Poseidon, god of water, earthquakes and horses (Atsma 2011d). A Triton-Poseidon connection has particularly interesting possibilities in understanding this imagery's connections with Horseman identities and rituals, and it does not negate RIP period identifications with Jupiter or even local northwest European sky gods such as Wodan.

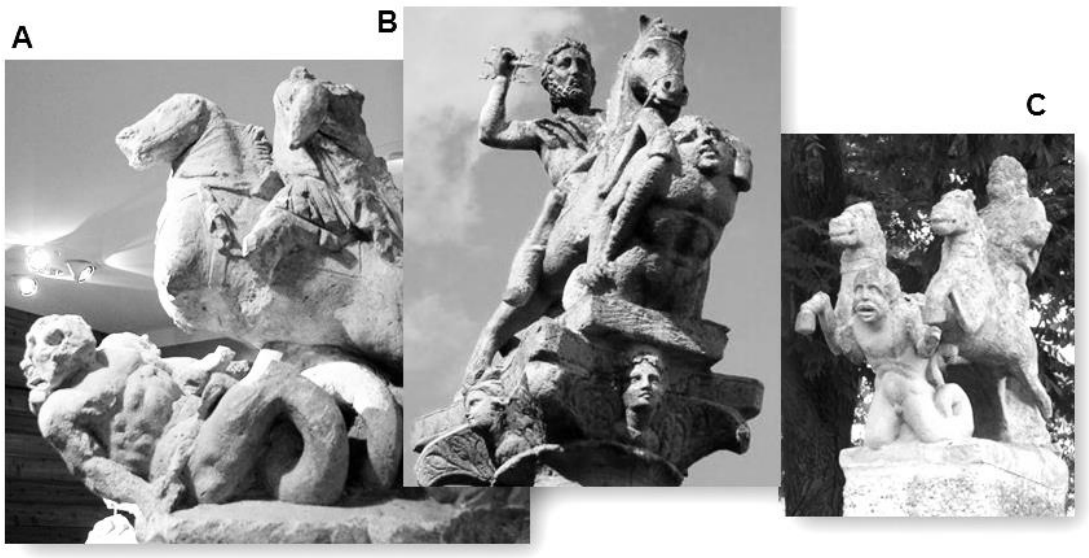

Figure 4.9 The Jupiter-pillar Horseman: Lightning gods and serpent-giants.
The 3rd century Jupiter columns are variant expressions of the Horseman trampling enemy motif found on 1st century AD cavalry funerary-stelae.
A. Tongeren Jupiter column (Prins 2014).
B. Jupiter column (Lobdengau Museum 2013)
C. Bietigheim Jupiter Gigantensaeule (Kamahele 2013).

Poseidon's imagery: a bearded man riding his horses over the sea, trident (similar to lightning bold) in hand, could also may equate with the Horseman image of the Jupiter-pillars. As mentioned above, one of Poseidon's origin myths, where his mother Rhea saves him from being devoured by his father by substituting (sacrificing) a horse born at the same time (Dexter 1990). Poseidon was also credited with teaching man how tame the horse (Knight 1892: 76-82). Poseidon's aspects as a god of horses also correlate with the divine rider/twins (Dioscuri) cults. The consumption of the horse by the god, Cronos may link with sacrificial and ritual-consumption of horses, while the substitution of horse for Poseidon implies the duality of horse and horseman. This duality and inter-changeability is also seen in the Dioscuri and Hengst-Horsa traditions (Atsma 2011, Johnston 1992). The Poseidon myth and the Asvamedha also promote the idea of the horse as a proxy human (and divine) sacrifice, a theme also found in northwest European Odinnic traditions. Like the king who sacrifices himself (the horse) in the Asvamedha, Odin 'rides' his 'horse' Yggdrasil to sacrifice himself to himself. These legendary traditions may be a basis for aspects of horse-sacrifice practices found in Britain and other areas of Europe.

The Horseman and foe on the Jupiter-pillars, unlike the funerary-stelae, may have symbolised a more generalised idea of triumph over the forces of chaos. The triton was originally potentially a beneficial god, especially to seamen, as he calmed the waves, but by the Roman period the imagery had been conflated with the inimical giants and could easily have been associated with Jormundand, the giant Midgard Serpent, in northwest European mythos. The intention during the RIP when these columns were erected was probably mixed, with the foe a general threat/destruction symbol defeated/dominated by a specific martial god, either Jupiter or a local sky god and Jupiter composite. The statuary imagery is powerful and the pillars also often included altars, other celestial gods and symbolism (Woolf 2001).

Similar Jupiter imagery of the storm god helping to win battles is found on Trajan's column, celebrating Roman successes in the Dacian-Sarmatian wars (Ulrich 2015a). In scene 24 of Trajan's column, the god oversees the first great battle of the first Dacia war, ready to hurl his lightning bolt. Most of the Jupiter

pillars have been identified in Germany, but they occur across Europe from Romania to Britain. Approximately thirty are known in Belgica and Britain (Woolf 2001). Like the Epona imagery, there is a connection with the auxiliary cavalry in northwest Europe, with significant concentrations along the British and Continental frontiers, though Aldhouse-Green (2004:226-232) does not feel the connection is as clear.

Woolf (2001) equates these pillars with the merger of Gallic and Roman elements. In Britain, the Chester pillar's altar identifies Jupiter with Taranis, the Gaulish sky-god, and the altar from Brougham fort (Cumbria) near Hadrian's Wall also supports a merger of local and Roman religion (Aldhouse-Green 1983): 46. The Brougham dedication, by the acting commander of the *Vangionum Cohortis Equitatae,* honoured both the high Roman god and the local god: "To Jupiter, best and greatest and to the Genius of this place…" (Collingwood et al. 2014d). The dual dedication at Brougham possibly suggests connections between the cavalry unit there and the local tribe.

While Woolf (2001) sees a general merger of local and Roman culture in the Jupiter-pillars, he makes no connections to any particular group or part of society, but a connection with the auxiliary cavalry seems highly likely. The Cumbrian example noted above was dedicated by a cavalry commander, and others may also be associated with the cavalry. Unfortunately, many of the columns from Britain are very fragmentary and without complete dedications, but a number of the find sites are at areas with cavalry stelae and/or known forts with cavalry units (Collingwood et al. 2014a, Collingwood et al. 2014e). Possible design elements may also connect with the Dacian wars and Trajan's column. A number of the continental pillars are also associated with cavalry fort sites, as noted above.

The imagery of the Horseman god trampling a foe on the Jupiter-pillar also has much in common with the earlier imagery of the cavalry funerary-stelae (compare Figures 6.8 with 6.9). The main differences between the two are the depiction of the rider as a young helmeted soldier versus an older bearded and unarmoured 'god', and the foe as a human barbarian versus a humanoid-serpent creature. A Horseman statue fragment from Lincolnshire displays

features incorporating both the aspects of the cavalry stelae and the Jupiter-pillars (Ambrose and Henig 1980). Overall, the Lincolnshire Rider resembles a cavalry funerary monument, but the foe being trampled by the horse is a hybrid humanoid creature with a curling fluked tail, the triton-giant of the Jupiter-pillars. The later Repton and Pictish Benvie stones also combine the Horseman imagery with humanoid-serpentine creatures.

4.5 Bracteates, Phalerae and Coins: Changing Horseman Cosmologies

There is one last aspect of British imagery which is important in interpreting Horseman ritual. This is the portrayal of images literally versus abstractly, which may reflect different world views and attitudes towards religious expression (Newell 1934). RIP imagery is very literal and corporal, as is that of the latter MED period. Imagery from both pre-Roman and post-Roman periods suggest British populations expressed the world more abstractly, possibly even aniconically regarding some subjects, particularly the human body, gods and religious subjects (James and Rigby 1997:18-19).

During the LIA period of Roman expansion, naturalistic Horse and Horseman imagery from the Classical world came into Britain, but was reinterpreted and abstracted by the native cultures (Green 1989:206-223). Roman culture, particularly during the 1st century AD expressed strong Greco-Classical elements with the cavalry favouring realistic and humanistic depictions of gods and warriors (Henig 2002)55-57. The 2nd century saw the beginnings of cultural integration and synthesis including native incorporations of artistic abstraction, though military traditions remained conservative. Native British preferences for abstraction can be seen in early British coins, many of which feature horses (Creighton 2000:22-54, 80-125).

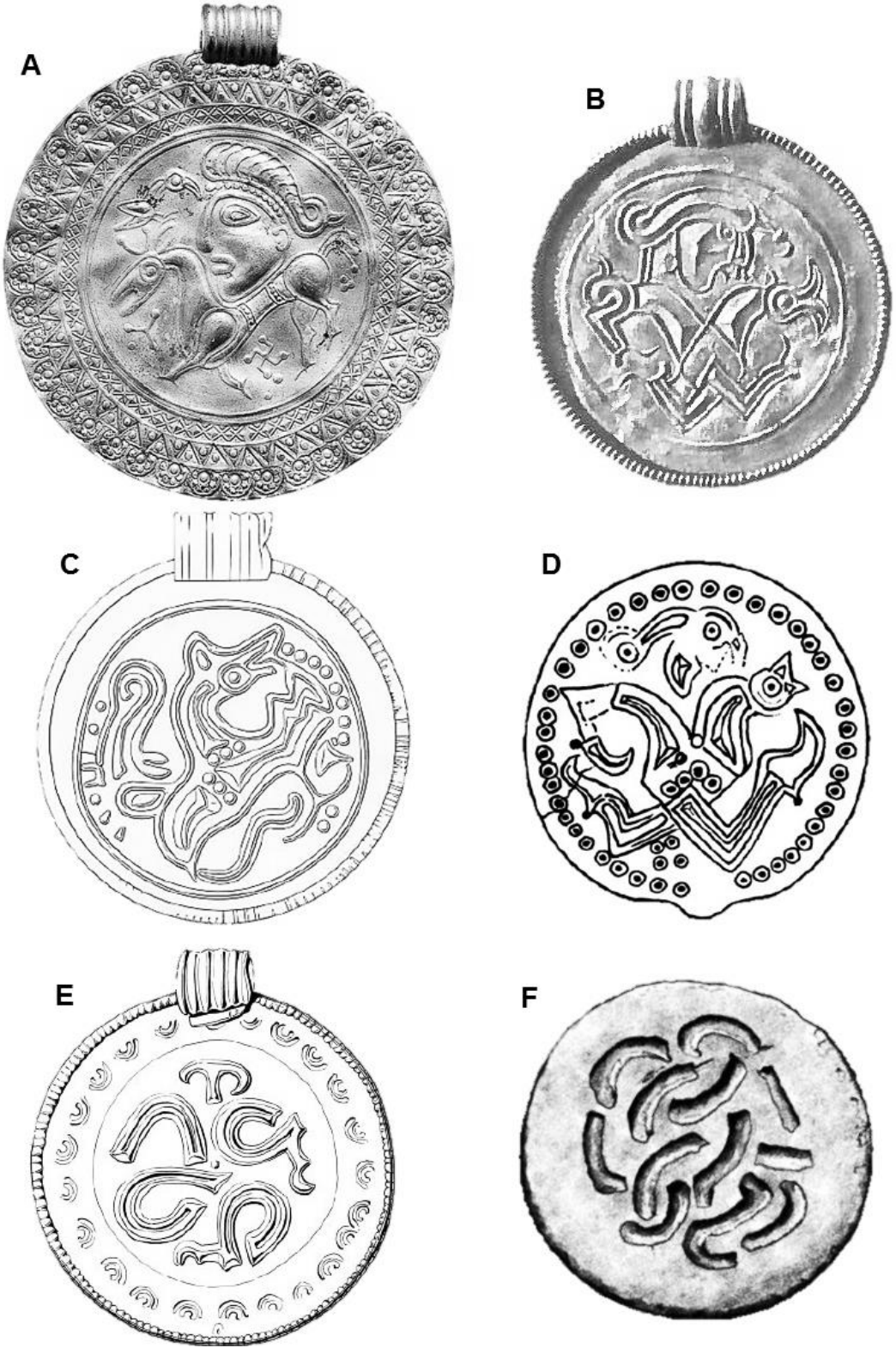

Figure 4.10 Horseman Bracteates, 6th century AD
Depictions of the 'Emperor' Horseman are reinterpreted in north-western European contexts. Horseman imagery is abstracted and disarticulated.
A: Scandinavian (Metropolitan Museum Org. 2016).
B: Grumpan, Sweden (Axboe and Kromann 1992:Fig.4).
C-F: English Bracteates (Behr 2010:Figures 2 and 7-9).

The British horse-images are disjointed, partial or distorted. Even when they are portrayed more naturalistically they are placed on spiral backgrounds which Creighton (2000:30, 49) equates with trance imagery and other aspects which suggest portraying human-god imagery was unacceptable. As noted above, Linduff (1979) and Webster (2001) both suggest the pre-Roman local precursors of Epona were aniconic entities prior to the cultural hybridisation which made her a corporal entity in the Roman world of the 2nd century AD.

During the early post-Roman period, perhaps signalling local cultures reclaiming past identities, British imagery again returned to highly stylized and abstract representations. This is illustrated by the 5th-6th century bracteates. Figure 4.10 illustrates variants of the prevalent Horseman theme prevalent in bracteate iconography. The initial imagery is probably based on Roman prototypes and possibly Greek classical depictions of Alexander and his horse Bucephalus derived from coins. Modern interpretations consider these images to have been reinterpreted and integrated into the local cultural religious systems to represent Odin/Wodan and some of the primary northwest European myths (Axboe 1999, Axboe and Kromann 1992, Bursche 2001, Hines 2013).

The Horseman image is often an Emperor's head atop a horse-creature, with other symbols, such as swastika and birds. The forms are clear in the Scandinavian bracteate (Fig. 4.10A), discernible but considerably morphed in the Swedish example (Fig. 4.10B), but disarticulated and stylized in the British bracteates (Fig. 4.10C-F) until the 'figures' are no longer representative (Axboe and Kromann 1992, Behr 2010, Behr et al. 2014, Metropolitan Museum Org. 2016). The abstraction in this imagery may signal a resurgence of pre-Roman identities and belief systems and perhaps an anti-Roman, anti-corporal imagery response to the end of Roman hegemony and the fragmentation of the provinces. A fragmentation which may be echoed in some of horse-ritual practices of the LIA and MED periods discussed further in Chapter 5.

4.6 LIA-MED Horseman Identity and Imagery Summary Review

This chapter considered imagery as a means of establishing aspects of Horseman identities in early Britain. A variety of sources linked humans and horses together in Horseman identities. These identities encompassed aspects and perceptions of masculinity, lordship and military status for both humans and horses. Expressed Horseman identities changed over the first millennium AD and indicate impacts from other areas and cultures in Eurasia, often linked with the Roman military and associated Hellene ideals, particularly the themes of the Trojan War and the military glory of Alexander. This imagery also included a feminine aspect, Epona, which again was strongly linked with native and auxiliary Horseman identities in the RIP. British Horseman identities were a synthesis of native traditions melded with Roman-borne and Roman-influenced communities, particularly cavalry communities, created during the RIP which continued to shape MED Horseman identities. The need to reclaim past identities and establish new ones was also reflected in Horseman imagery.

Early British Horseman identities as expressed in the LIA coins did not generally picture either the cavalryman or the charioteer Horseman, but commonly displayed horses alone, often in abstract form. The artwork suggests a worldview which favoured symbolic imagery. The impact of Roman cultures and values brought imagery attuned to straight-forward, realistic, physical depiction, and began to emphasise the cavalry-Horseman. There are indications Horseman imagery reflected the development of specific communities centred on Roman cavalry auxiliaries and their communities. These groups and their imagery melded local, Roman and other Eurasian cultures into distinct identities which were likely shared in varying degrees with similarly syncretic communities which grew out of auxiliary cavalry sites in northwest Europe, particularly with groups which had close ties with eastern British tribes prior to Roman expansion, such as those from the areas directly across the English Channel.

Post-Roman Horseman bracteates emphasised abstract and disarticulated imagery, which may have reflected a need to reclaim pre-Roman native beliefs and identities. These may also indicate a refocus on connections with the Baltic world when those with the Mediterranean were disrupted by warfare and the

Justinian plague. However, Hellene-Roman ideals persisted throughout the first millennium (and beyond).

Greco-Roman figures were translated and amalgamated with local British and Germanic/Scandinavian gods and stories, with the physicality of Roman cultural imagery modified by native transcendent/disembodied trends. Roman ideals and physical representational imagery cycled back, and British MED Horseman culture embodied these themes in new expressions, showing changing dynamics in the pull between native and Roman-inspired culture (including the MED Roman Christian Church) and Britain's position between the northwest European/Baltic and Mediterranean cultures.

Chapter 5: Horse-Depositions - Burial, Ritual and Sacrifice

"he put on a pole the severed head of a horse that had been sacrificed to the gods, and setting sticks beneath displayed the jaws grinning agape ..."

The Nine Books of the Danish History, Saxo Grammaticus (c.1201(1905):209)

The use and burial of the bodies and bones of horses has formed a part of human cultures for millennia. As a domestic animal the horse has long been a special animal, imbued with spiritual and martial qualities (Creel 1965, Grant 1991b, Borneman 1988, Green 1989:131-146). These qualities led to the ritual use of horses in cultures within Britain and the wider Eurasian sphere. This ritual use and deposition of horses is present in a variety of forms and held meaning for the individuals and cultural groups practicing these rites. These practices appear to link with various personal, social and cultural identities.

Ritual and identity are heavily intertwined concepts. A major part of cultural, social and personal identities are both signalled and formed through ritual, so understanding how the idea of ritual and ritual depositions has been understood and used within archaeology is important to understanding the information available on animal, and specifically horse, depositions. These perceptions of ritual within the archaeological field are reviewed briefly and the term, as used within this discussion, is defined in the next section. The following sections give a very short overview of Eurasian horse-burial practices over time, then concentrates on British horse-depositions following a typology organised into two primary groups: complete-horses and partial/ABGs or disarticulated horses.

5.1 Issues of Ritual, Religion, Sacrifice and Animal Depositions

Definitions of ritual and what constitutes ritual depositions in archaeology are diverse and sometimes controversial. In British archaeology, the term ritual appears easier to find, and apply, the further back in time the site (Hamerow 2006, Hill 1995:4ff, Morris 2008:251-2). Conversely, the closer to historic and current times the discussion, the more reluctant the designation of ritual.

This seems to stem from prejudices about both the term and practice of ritual, as well as modern fluctuations in these attitudes by researchers. Ritual is generally equated firmly, almost interchangeably with religion. Modern Western cultures, often predominantly post-reformation Protestant and secularly-oriented, also tend to view ritual and religion as more or less equivalent to superstition. Ritual/religion is often something heathen, ignorant, unsophisticated. And, to many archaeological viewpoints, ritual, and discussions about ritual are unscientific. All these aspects have made many archaeologists uncomfortable assigning ritual interpretations, especially to their own historic past.

This equivalency of ritual and religion can be seen clearly in Renfrew's (1994) discussion of religion in archaeology. Seeing the two precepts as one is also probably why Hill (1995) argued strongly that structured behaviours (and depositions) are not necessarily ritual, even if they include human remains. Hill (1995) says understanding the manner and motivation of depositions requires understanding the cultural context in which the activity took place. A comment echoing Renfrew (1994:47), when he says: "from the standpoint of the archaeologist, religious activities are potentially open to observation only when they might be identifiable as religions by an observer at the time in question."

These stances seem to say there is no way for archaeologists to identify ritual or religious depositions without already understanding the culture's rituals or religion. Since the reason for archaeological analysis is to understand the culture, this brings research to an impasse. Hill's position that structured depositions must be separated from ritual depositions makes it extremely

difficult to define or identify a ritual deposit, and has been largely ignored in subsequent analyses (Morris 2007:319-320).

To a certain extent, this is simply semantics. Over time, archaeologists have used a variety of terms for referring to these deposits: ritual, special, associated, patterned (Hamerow 2006, Hill 1995:1-5, Morris 2007:317-319). Mostly, new terms have been coined in attempts to create a term which doesn't associate a religious context, as religion is understood to be a state of belief, based in the mind and so unknowable archaeologically. The way around this problem is to differentiate ritual from religion, not ritual from structured, deliberate deposits. Using a definition of ritual based on the primary dictionary definition removes such issues.

> *Ritual: a series of actions performed according to a prescribed order which may form part of personal, social or religious practices* (Cross 2011).

The emphasis on this definition is on structured actions. As Hill himself acknowledged, the way materials (true 'refuse' or not) are structured is due to the relationships and beliefs of a society. The structuring is, to many extents, the ritual, and the physical results of cultural beliefs. The cultural beliefs are exactly what archaeologists are trying to understand from the depositions. While it is true that it is impossible to interpret a deposition strictly from the deposition itself, the collection of more and more information on such deposits gives a basis for seeing patterns. Interpretations of the motivations behind a structured deposition can be made based on an analysis of the individual deposition within the framework of the corpus of similar finds, the specific context and overall site history, and anthropological literature about similar human practices.

Hill (1995:4) took exception to the term 'special,' saying all remains are special having escaped normal destruction and should be investigated individually to understand how they came to be preserved. This is undoubtedly true, and especially pertinent to horse remains where there are so few. Certainly all

depositions are special, and any may have a ritual aspect, and interpretation must always be multidisciplinary. As Hamerow (2012), amongst many others, has noted, many aspects of domestic life are ritualised. This has been offered as evidence that ritual (aka religion) was not separable from daily life *in the past*. The qualifier, in the past, is a prime example of the current bias about ritual. Ritual must be seen as part of everyday life in all periods and cultures, and not only as one found *in the past* or only as a form of religious expression.

The performance of many tasks is often ritualised (Liénard and Boyer 2006). Activities and tasks, particularly performed as groups, are consistently structured to follow particular routines which may be further ritualised to include songs, dress, images, movements or stories linked to their performance, but often do not have a conventional religious standing. Rituals may often intersect and become entwined with religious practices, but are often not inherently allied to any particular religion. To view ritual in this way, explains why many ritual activities, often called 'folk customs' or 'superstitions' persist through time and socio-religious changes. Ritual practices, in the form of repeated, structured archaeological deposits can be considered separately from specific religion and will give insights into human identities.

This chapter is concerned with investigating horse-ritual practices as evidence of human social and cultural identities. Since it was not possible to re-examine all pertinent horse-depositions personally, the interpretations made in reports was important. As noted in the beginning of this section, interpretation and recognition of ritual varies amongst experts. Hill (1995:5) noted the Neolithic and EBA were characterised by mortuary monuments and ritual, while the LBA and IA were defined by settlements, domesticity and functional interpretations of deposits. Morris (2008) also found attitudes towards ritual-interpretations have changed over time in the archaeological community. Morris looked at how articulated remains (associated bone groups: ABGs), the type of deposition most likely to be associated with ritual, were interpreted in the report literature during different decades. In the 1970's all reports Morris examined (n=48) either considered such depositions as functional (waste-burial) or made no interpretation. The next two decades saw changes, with about half the ABGs

either not interpreted or considered waste, while the other half were considered ritual or a mix of ritual and functional.

Grant's (1984, 1989b, 1991a, 1991b) analyses during the 1980's and 1990's were landmark publications bringing ritual interpretation forward in zooarchaeological analysis. In the 1990s, the discussion and debate over ritual became significantly prominent in archaeology (Hill 1995, Hill 1996, Renfrew 1994). Hill (1996) felt the interpretation of ritual for these types of depositions was still controversial, possibly because he felt the label 'ritual' meant most archaeologists then no longer attempted to apply 'normal' or functional cultural aspects when interpreting depositions. The situation remains much the same with some zooarchaeologists perhaps overly reluctant and some too enthusiastic in assigning ritual interpretations.

Ritual requires cultural interpretations, an area which perhaps belongs more naturally in the realm of anthropology and other social sciences than archaeology. Archaeology and anthropology were and are very separate disciplines in the UK (though this is not true in other countries). Archaeology originally centred on manufactured items and structures, with the study of biological remains a new addition to the discipline. With the rise in bioarchaeological research and greater emphasis on interdisciplinary investigations, depositional practices and understanding the motivations behind these practices has become of greater interest.

The previous discussion looked at the development of the investigation of ritual interpretations of animal depositions, principally the deposit of whole or partial skeletons, but what is ritual and how can ritual depositions be identified? These questions have been explored by numerous scholars (Äikäs et al. 2009, Albizuri et al. 2012, Anderson et al. 1996, Bar-Oz et al. 2013, Barker 1989, Baron 2011, Bond and Worley 2006, Cross 2011, Klenck 1995, Valera and Costa 2013, Williams 2003, Worley 2008). For the purposes of this study, ritual, sacrifice and how to identify ritual-depositions are defined as follows (Cross 2011):

- **Ritual:** a series of actions performed in a prescribed order which may form part of personal, social or religious practices.

- **Sacrifice:** an offering, usually to a divinity or ideal, of something of value in a manner which removes the offering from public use (often by being killed, burned or otherwise destroyed).

- **Ritual Deposition:** a set (purposeful collection) of actions, items or deposits; repetition of these sets chronologically and/or spatially; and are often found in inherently ritual contexts (where and how the deposit is placed), for instance human cemeteries.

5.2 Ritual Horse-Deposition

The ritual use and deposition of horses and horse-bones began prior to horse domestication in the Palaeolithic when the horse was a significant meat-animal. This is evidenced by various images and artefacts such as the famous Lascaux cave paintings, the decorated horse-jaw from Wales, and numerous incised horse images often made on horse-bone (British Museum 1987). Trustworthy dating, as with all aspects of horse archaeology is often problematic. The best available source for radiocarbon-dated horse-materials is Kaagan's (2000) PhD, which covers horse-bone samples from pre-glaciation periods through to the LIA in Britain, along with some European sites. While pre-glaciation examples of horse-images and icon-like carved bone exist, evidence of ritual horse-burial, as parts or complete animals, is post-domestication, and in Britain appears primarily during the IA-MED periods.

The exact date of domestication remains highly contested. Domestication may have first occurred as early as the 5th millennium BC, and early sites for domestication are associated with the Eurasian steppes (Olsen 2006a). Certainly by the BZA, the domesticated horse was found widely throughout Eurasia, including Ireland and Britain. In his survey of domesticated animals, Bökönyi (1974:230-3) indicates horse-ritual, particularly in funerary contexts,

became frequent in the BZA, especially in the Eurasian plains/steppes geographies and within pastoralist cultures, and considered increases in horse-depositions in Europe in later periods were probably associated with waves of Eurasian nomadic groups.

One of the earliest horse-ritual sites was believed to be Dereivka in the southern Ukraine. Dereivka was principally a 4th millennium BC hunting site with a large assemblage of horses (Azzaroli 1985, Mallory 1986, Telegin et al. 1986A:6-7). The ritual placement of the skull and foot bones of an adult male horse at the site was originally interpreted as the earliest domesticated horse-ritual, but subsequent radiocarbon-dating indicated the deposition was much later (IA) than the primary hunted assemblage (Olsen 2006a). The current earliest known horse-burials in context with human burials are those at the Khvalynsk and S''ezzhee cemeteries, c.4th to 3rd millennia BC, in Russia on the Eurasian borders (Anthony 2007:201, Kuz'mina 2007:330).

Kuz'mina (2007:330-331) said head-foot burials similar to those at Dereivka occurred throughout the Urals, Volga, Dnieper and Danube areas during this early period, but included no radiocarbon-dates to support the dating. Given the IA date for the similar burial at Dereivka, their current dating must be considered insecure. Other sites with very early dates such as the Copper Age Hungarian burials with carved horse-bones (metacarpals) or the purported Chinese Shang dynasty (c.1600-1100 BC) man and horse-burial may also need radiocarbon-dating to verify their dates (Bökönyi 1974:238; Creel 1965). Overall, the general evidence agrees horses were widely found in European contexts by the BZA, c.2000 BC (McCormick 2007, Sherratt 1983, Zukauskaite 2009).

In Britain and Ireland, there were eight sites considered to have secure post-glacial horse-bones belonging to the BZA. Newgrange and Killuragh Cave in Ireland, and Fussell's Lodge, Runnymede Bridge, Whitehawk, Durrington Walls, Etton and Grimes Graves in southern England (Bendrey et al. 2013, Clutton-Brock 1984, Kaagan 2000:85, 96, 154-5, 342-348). The Newgrange horse-bones were recently radiocarbon-dated taking them from the BZA to the LIA-RIP and the Grimes Graves skull, probably the primary early British ritual horse-

deposition with a radiocarbon-date, was re-dated from Neolithic/BZA to RIP (Bendrey et al. 2013).

The remaining secure BZA sites all suggest possible ritual contexts (Bendrey et al. 2013, Kaagan 2000:85, 96, 144, 154-7, 164, 191-4, 342-348ff). The Killuragh Cave bones, which included a horse-sacrum, were in a shallow pit with a human-jaw. The horse-tooth from Fussell's Lodge was part of a Neolithic long barrow assemblage. Durrington Walls is a Neolithic henge-monument with evidence of significant ritual activity from the Neolithic through the IA. The three disarticulated horse-specimens were dated LBA, MIA and LIA. This author examined some of the horse from a recent excavation at Durrington Walls, which included the partial pelvis of a very young horse (<6 months). The presence of such a young animal suggest horses were bred in this area. The Etton horse-skull and Whitehawk metapodial were from considered secure Neolithic enclosures, but both horses were radiocarbon-dated LBA. The LBA-EIA Runnymede Bridge deposition appears the oldest known British complete horse-burial (1129–806 cal. BC).

Much more evidence for horse-ritual is found in the IA, particularly the MIA and later, with many horse-ritual sites dating to the first millennium BC. One of the most famous Eurasian depositions, the Pazyryk (Altai/Mongolia) nomadic cold-mummified horses with human-burials were originally considered EIA (5th century BC), but have been radiocarbon-dated to the MIA, 4th-3rd centuries BC (Creel 1965, Dashkovskiy and Usova 2011). One of the most prolific horse-burial cultures in the first millennium BC was the Scythian kurgan (mound/barrow) culture (Arnaud 1999, Bökönyi 1974:241, Piggott 1962).

Burying horses with individuals also spread into Central and Mediterranean Europe just prior to or during the first millennium BC. Bökönyi (1974:240-1) said human-burial with horses was a Mycenaean custom, described by Homer in the Iliad, and found throughout Greece, Cypress and Thessaly. The Iliad describes the Trojan War and the inclusion of chariot-horses in cremation-rites of elite warriors. Homer's Iliad is believed to have been written c.7th century BC and depict a LBA (c.1200 BC) Mycenaean culture (Englert 2015). However, the Iliad likely depicted an idealized past combined with cultural details and practices

from Homer's period. In terms of archaeological remains, the MIA was probably the earliest period with significant evidence for Horseman-burials.

In Britain, as elsewhere in Europe, horse-depositions appear to become a particularly significant practice in the first millennium BC and first millennium AD. There are more than twenty sites with radiocarbon-dated horse-bones from this period found throughout Britain and Ireland, and many more examples without radiocarbon-dating (Bendrey 2013; Cross 2009; Kaagan 2000:212-243ff; McCormick 2007; Vierck 1970-1). While horse-depositions and horse-burials occurred regularly in Britain and other European countries, it must be remembered they only represent a very small percentage of burials or ritual depositions, and often involved only one or two horses (Bökönyi 1974: 230-296, Cross 2011, McCormick 2007, Piggott 1962, Simoons 1994).

5.3 Typology of Horse-Depositions

There are a number of ways of categorizing and investigating horse/animal depositions. Depositional context, e.g. depositions in wells, shafts, ditches or pits, as was done by Hill (1995) and Maltby (2012), is one means. Starting from a chronological viewpoint is another. All of these are important and need consideration, but an emphasis on the type of remains, as generally followed by Hamerow (2006) and Morris (2008), and focusing on the horse itself was best suited for this discussion.

Originally proposed (and published early in this project: Cross 2011) was a basic typology separating horse-depositions into three categories: Human-Horse, Complete-Horse and Horse-Element. The Human-Horse category overlaps the other two categories, as humans may be buried with complete or partial horses. Whether and how humans are associated with horse-burials is not always clear and direct association should never be simply presumed based on proximity (Lauwerier and Hessing 1992). In light of these issues, the deposition types focused on here are the primarily complete horse-burials and partial/ABGs (limb/skull-burials). However, as there will always be issues

around identifying the original composition of deposits, especially those from disturbed or poorly persevered contexts (Fig. 5.6-5.7), disarticulated-assemblages are also considered. Especially during the IA, such assemblages appear to potentially represent ritual display/feast remains.

5.3.1 Complete Horse-Burials

This category includes burials of complete and near complete horses. Many of the near complete horses probably were originally buried as complete horses, but portions have since been lost to various taphonomic forces. Depending on the degree of fragmentation and disturbance, it can be difficult to assign some depositions to this category. The requirements used here are the presence of both axial (skull and spine) and appendicular (limbs) skeletal elements. Preferably axial elements representing the skull and post-cranial (vertebrae and/or ribs) are present, but fragmentation, collection and recording practices are not always thorough.

Examples of these types of burials in ritual contexts have been found from the BZA (Runnymede Bridge) to the Modern period (Whitby, Table 5.1). Complete or representationally complete horses occur in a number of different burial contexts and both alone and with humans. Burial contexts are diverse and a general descriptive list, with some UK examples is given in Table 5.1.

Runnymede Bridge (Surrey), as noted above, appears to be the earliest securely dated whole horse-burial in the UK and Ireland (Done 1991, McCormick 2007). The Neolithic-IA waterfront settlement had evidence of a number of horses, NISP=79 (3.6% of the faunal assemblage). The most significant was the LBA-EIA pit-deposition of an almost complete adult (c.10 years) male horse. The pit included in its upper layers a portion of possible bridle gear (an antler cheek piece). The horse deposit was disturbed, but had apparently been deposited as partially dismembered in articulated portions, and had evidence of burning. McCormick (2007) suggests this may indicate it was the remains of ritual feasting.

Table 5.1: Types of Horse Burial Contexts

Feature/ context	UK Examples	Short Refs
Wells or shaft-pits	Newstead, Great Chesterford	Curle 1911, Neville 1855
Pits	Whitby, Great Chesterford	Baker and Daulby 2003, Evison 1994:29
Pits covered by mounds	Kirkburn, Sedgeford and Lankhills	Stead 199:140, Cross 2010. Case-studies: Ch.11
Ditches, some associated with mounds or structures	Driffield Terrace, Broxmouth	Carrott et al. 2006, Cussans et al. 2013. Case-studies: Ch.11
Pits in cemeteries, some associated with human-burials	Sutton Hoo, Icklingham, Lakenheath, Sedgeford	Stead 199:140, Levine et al. 2002, Cross 2010. Case-studies: Ch.11-12
Pits as foundation deposits	Blewburton, Newstead	Collins and King 1953, Curle 1911. Case-studies: Ch.11
Closing deposits	Limekilns	Cross 2009:A105

A second potential LBA horse-deposition was found at Cliffs End Farm (Kent) (Bendrey 2007:176-178, 194-196, Knight 2005, McKinley et al. 2014:55-61). This burial is not only significant because it appears to represent the oldest dated human-horse-burial in Britain, but also illustrates the multi-period nature of many horse-burial sites, and, significantly, was chosen for a small MED cemetery. Cliffs End features BZA and IA ritual areas with at least six round barrows and enclosures, which attracted a c.7th century AD cemetery and settlement (McKinley et al. 2014, Wessex-Archaeology 2008).

The Cliffs End human and horse-deposition (3665, burial3660, ABG591) with a c.16 years old male(?) was found in what appears to have been an area of ritual sacrifices of humans and animals (Fig. 5.1) (Schuster 2008). Knight (2005) says the distal vertebral bodies of the horse had only recently fused and the pubis was fused which suggests, based on the author's research (see Ch.6), the horse was c.8-12 years old, a prime-use age adult. Grimm (2008) also examined the horse and judged it male based on pelvic morphology and possibly an active and/or older horse based on the degree of pathology. Radiocarbon-dating found both the horse (2283+/-28 BP) and youth (2250+/-35

BP) were MIA, not BZA. Even with the date change, this burial (3660) is the earliest securely dated horse and human burial in Britain. Gnawing on some of the bones and the dates may indicate the horse was previously killed, possibly displayed and/or buried, and then redeposited with the juvenile. In addition, there is another juvenile (243204) with fragments of a young adult horse skull (ON264), c.5m from ABG591 (McKinley et al. 2014:49-76, 172-6).

This burial also highlights a little considered aspect of human-horse-burials: manipulation and re-deposition rather than simultaneous deposition. While the human and horse dates overlap, indicating it is possible the horse and youth were buried as a single event, the sequence is such that the horse may predate the juvenile and the composite burial may be a form of re-deposition. Manipulation of horse remains is a concept which re-occurs in a number of the sites discussed in this thesis.

The horse (ABG591) was nearly complete, but significant elements were missing: the head and first two cervical vertebrae, along with the left hind-limb and most of the forelimbs (only the scapulae and right humerus were present). These missing elements and taphonomic damage bring into question the depositional sequence of the horse and juvenile.

Knight (2005), Bendrey (2007:194-196) and Grimm (2008) all discussed the horse-deposition. Knight (2005) suggested the horse may have been previously exposed based on the damage and the possible canid gnawing on one element, and the missing elements were possibly due to this event. This may support redeposition of the horse or manipulation of a previous horse-burial when the juvenile was buried.

Bendrey (2007:183-5, 194-196) argued the missing elements contradict the observed natural disarticulation sequence of horses (specifically the retention of the scapulae which are the first points of disarticulation) and usual butchery patterns. Therefore, the incompleteness of the horse was more likely due to deliberate alteration as part of the funerary ritual.

Figure 5.1: Cliffs End Farm (Kent) IA sacrificial burial. Young man and horse, feature-3665, burial-3660, ABG-591.
(Copyright Wessex Archaeology).

A number of additional points support human manipulation of the horse skeleton. The pelvis was fused and broken, possibly when the left limb was removed. This suggests pressure was exerted on the pelvic area, possibly by individuals standing on that area. The position of the boy, the underlying soil fill and the horse indicate the forelimbs were likely missing when the boy was placed. The presence of the sesamoid bones on the complete hind-limb indicates the skin was still intact there when the horse was deposited. The author collected a horse skeleton which had been exposed for about eight months on the surface which retained enough dried tissues to maintain general articulation, but moving it twisted the proper anatomical alignment.

The positioning of the Cliffs End horse is most consistent with primary deposition. The fact that the uppermost limbs (left) are missing is also consistent with possible disturbance as these elements are the closest to the surface. However, retention of the left scapula is not consistent with natural or scavenger-assisted loss. Nor is the retention of the right scapula-humerus with loss of the remaining limb. The anatomical position of the left scapula and the right scapula-humerus suggests something prevented these from being removed with the remainder of the limbs. This may suggest these bones were purposely disarticulated while soft tissues remained. For the right limb this would be through the humeral-radioulnar joint (elbow), not an easy disarticulation point, so cut marks on the distal humerus would be expected. The scapula-humeral joint is broader so might not show cutmarks. There were no cutmarks observed. The loss of the skull with the first two vertebrae is also not consistent with natural disarticulation, and in this anatomist's experience, human disarticulation of the horse skull from the body is easiest before or after the atlas vertebra (CV1) in the fleshed horse.

A possible scenario of the deposition is exposure of a pre-existing horse-burial and purposeful removal of the horse head and limbs with some scavenger interference as part of the deposition of the bound youth. The removal of these portions may have been a form of ritual breakage similar to that surmised for damaged weapons, meant to negate the horse's functionality. Human (and possibly scavenger) alteration of the horse skeleton seem a secure assumption,

and likely was linked to the deposition of the juvenile as a later addition, or, perhaps less likely, the redeposition of the partial horse skeleton with the later juvenile. Also, partial disarticulation at primary deposition seems less likely, unless the horse was displayed first and deposited after partial decomposition. The nearby skull (ON264) with another juvenile may be related.

It is interesting that very similar horse-portions (head, neck and forelimbs), as are missing from the Cliffs End horse, are present as separate deposits (Fig. 5.2, 5.9) in some of the large northwest European horse-burial sites and at a number of British sites such as Sedgeford and Danebury (Grant 1991a, Bertašius and Daugnora 2001, Cross 2009/2011). There are indications removal and separate burial of horse-limbs was a specific ritual-practice at Sedgeford (upright left fore-limb) and Danebury (hind-limb, Fig. 5.8), but in some cases limb-burials may be due to taphonomic issues. Many of horse-burial sites are highly disturbed, and some limbs may have come from complete horse-burials, as pit-depths may be unequal making limbs at risk of disturbance, as does the natural rotation of decomposing quadrupeds (Cross 2009). Forelimbs also have only soft-tissue connections to the body, so will detach early in the decomposition process. The author observed the removal of entire limbs from a number of surface horse-burials by scavengers, especially by canids, during research. In Figure 5.7, the fore-limbs were in the deepest and most protected position, which suggests the remainder of the skeleton could have been present but may have become exposed and lost over time.

The position of the Cliffs End horse (591) does not suggest differential levels. This in itself means the left limbs and head may have been proud of the rest of the skeleton and prone to more disturbance. So, while these elements may have been removed as part of the juvenile's burial and/or a purposeful part of the depositional ritual, they could have been damaged and lost, or removed prior to that event.

A second complete horse-burial was also present at Cliffs End (Fig. 5.3). The central trunk was poorly preserved, suggesting more acidic soils and deposit as an entire (un-gutted) horse, as the presence of the viscera provides a focal point for decomposition. The MED horse from Sutton Hoo exhibits very similar

decomposition, as opposed to the better mid-body preservation of the LIA Sedgeford horse-burial (Fig. 5.3). There was also good mid-body preservation of some LIA horses (Fig 5.4-5.5). This raises some interesting points: the good preservation of ribs and thoracic vertebrae of many horse-burials may indicate these horses were eviscerated prior to burial, and the potential for different treatment of the horse in MED and IA burials.

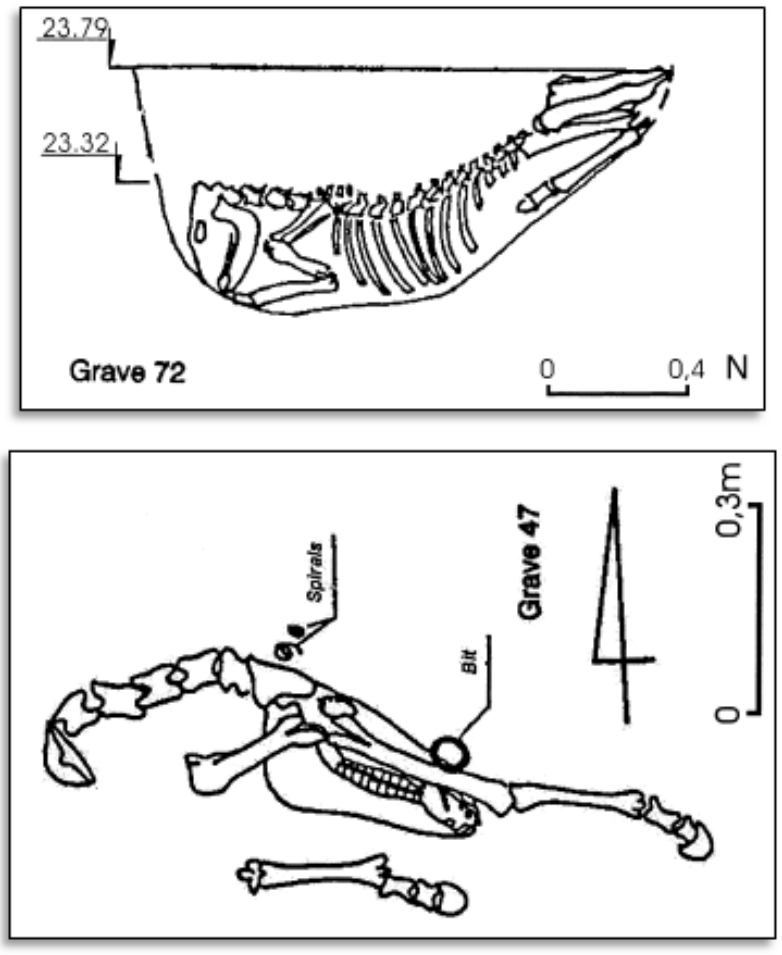

Figure 5.2: Marvelé cemetery (Lithuania) horse-burials and taphonomy. Questions of skeletal survival: differential pit depth (top), and 'partial' horse was probably a complete horse-burial (Bertasiu 2001: Figures 4-5).

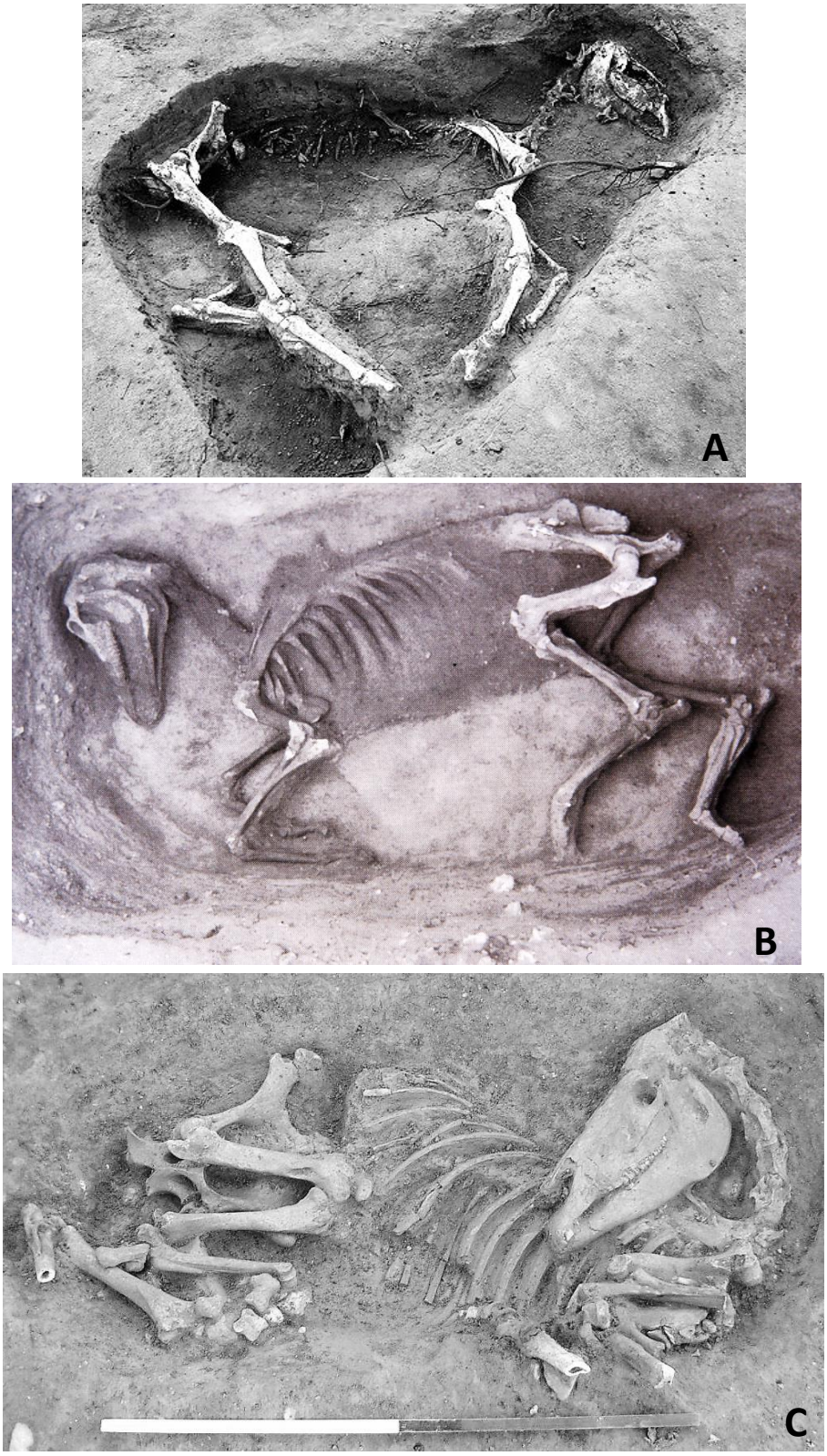

Figure 5.3: Differential decomposition – taphonomy or deposition? Soil effects and/or deposition of whole or gutted horses? (A) Cliffs End Farm modern un-eviscerated horse-burial, (c) Wessex Archaeology. (B) Sutton Hoo MED horse-burial in sandy-acidic soils, with similar decomposition (Carver 2005:126). (C) Sedgeford IA burial with much better preservation of the mid-body, (c) Tim Snelling, SHARP.

Some additional horse-bone was also present in other pits. This author attempted to directly examine these depositions but was not able to gain access within the scope of this project. The presence of another horse-burial, one not associated with a human, may indicate later, LIA, horse-burial ritual at Cliffs End. However, this burial is considered a modern intrusion. Many British complete horse-burials are considered LIA-RIP. Some of the most notable examples include the quadruple horse-burial at Nosterfield Quarries (Fig. 5.4), a double burial at East Hendred (Fig. 5.5), and the multiple depositions in well-like pits at Newstead (Curle 1911; Dickson et al. 2011: 155; Peake et al. 1935). Some horse-burials have been interpreted as MED, but this research indicates they should be reassessed if possible to ascertain whether some or all are earlier depositions (Vierck 1970-1).

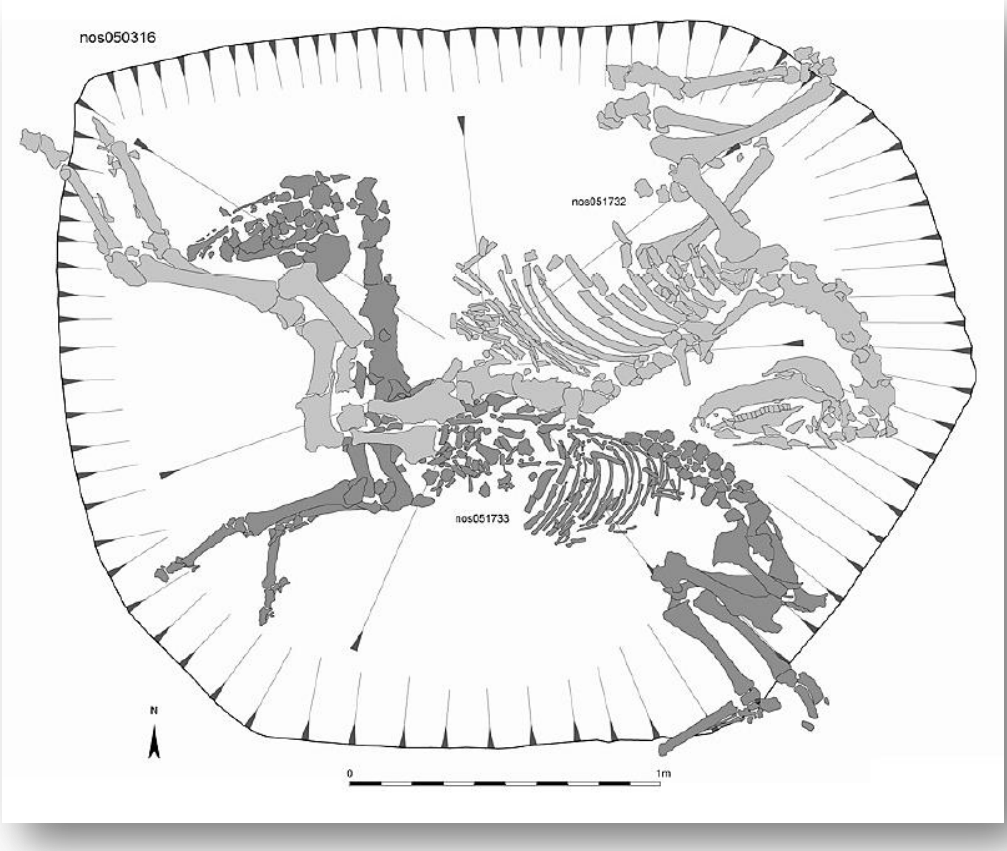

Figure 5.4: Nosterfield Quarry (Yorkshire) LIA quadruple horse-burial, lower pair of young adult male horses (Dickson et al. 2011:155).

The Nosterfield Quarry (Yorkshire) Pit-burial of four adult horses comes from a LIA-RIP landscape with, like Newstead, a large number of pits (c.107), and the site, like most horse-ritual sites, is multi-period with evidence of Mesolithic through Medieval use (Dickson and Hopkinson 2008, Dickson et al. 2011). The pit is in a landscape which includes square-enclosures, two square-barrows and human-burials, including a BZA cremation cemetery. Figure 5.4 shows the plan of the lower portion of the pit and the two best preserved horses. These horses were buried in a large pit covered with two additional horses. Of the four horses (possibly one was a mule, but morphological methods for equid specification are unproven), the upper pair (051731a and 051731b) were severely fragmented due to ploughing damage, but the two lower pair (051732 and 051733) were in better condition and 051732 returned a LIA radiocarbon-date of 100 BC-90 AD (Dickson et al. 2011:1-20, 149-155, 223-226, 315-ff).

All four horses were probably prime age (7-10 years). Both of the lower horses had pathology which may have rendered them lame. The two lower horses were placed on their right sides, while bone preservation of the upper pair suggests they were placed on their left sides. The upper horses were also smaller than the lower male pair (c.1.2m vs. c.1.4m), which may suggest the upper pair were female (see Ch.5). A male-female, right-left configuration would certainly suggest intentional ritual symbolism. Another pit may represent other horse-burials, but was so severely fragmented the only remains which could be securely identified as horse were teeth.

The East Hendred (Berkshire) double horse-burial (Fig. 5.5) was found within a round barrow, which also yielded 2nd millennium BC Beaker pottery and a RIP bracelet, near Blewburton Hillfort, (Didcot-Correspondent 1934, Editor 1934a, Editor 1934b, Hine and East-Hendred-Museum 1934, Peake et al. 1935, Piggott 1962). Interpretation of the double burial tended to assume the horses were a war-chariot pair and MIA Horseman-ritual related to the Arras culture, but the evidence predominately indicated a RIP date (see also Ch 10). The literature available suggested at least one of the horse skeletons was examined and skeletal-elements measured, but attempts to trace reports or the remains were unsuccessful. The short reports and excavation photo (Fig. 5.2) appear to be all

that remains of this horse-burial. Located near the horse-burial mound is Scutchmer Knob, a mound or modified natural-feature which was a traditional MED assembly (shire-moot) and battle-muster venue considered to have been King Cwichelm's burial-mound (Williams 2014).

Some chariot-burials are also associated with complete horse-burials (Fig. 5.6). In Thrace (Bulgaria) dating may range from the Bronze Age, but a number are LIA-RIP (Jarus 2017). In Britain, no MIA (Arras) chariot-burials with horses has yet been conclusively dated, but some horse-burials in Arras sites have been dated LIA-RIP (Krakowka 2017, Stead 1979, Baxter 1991a/b).

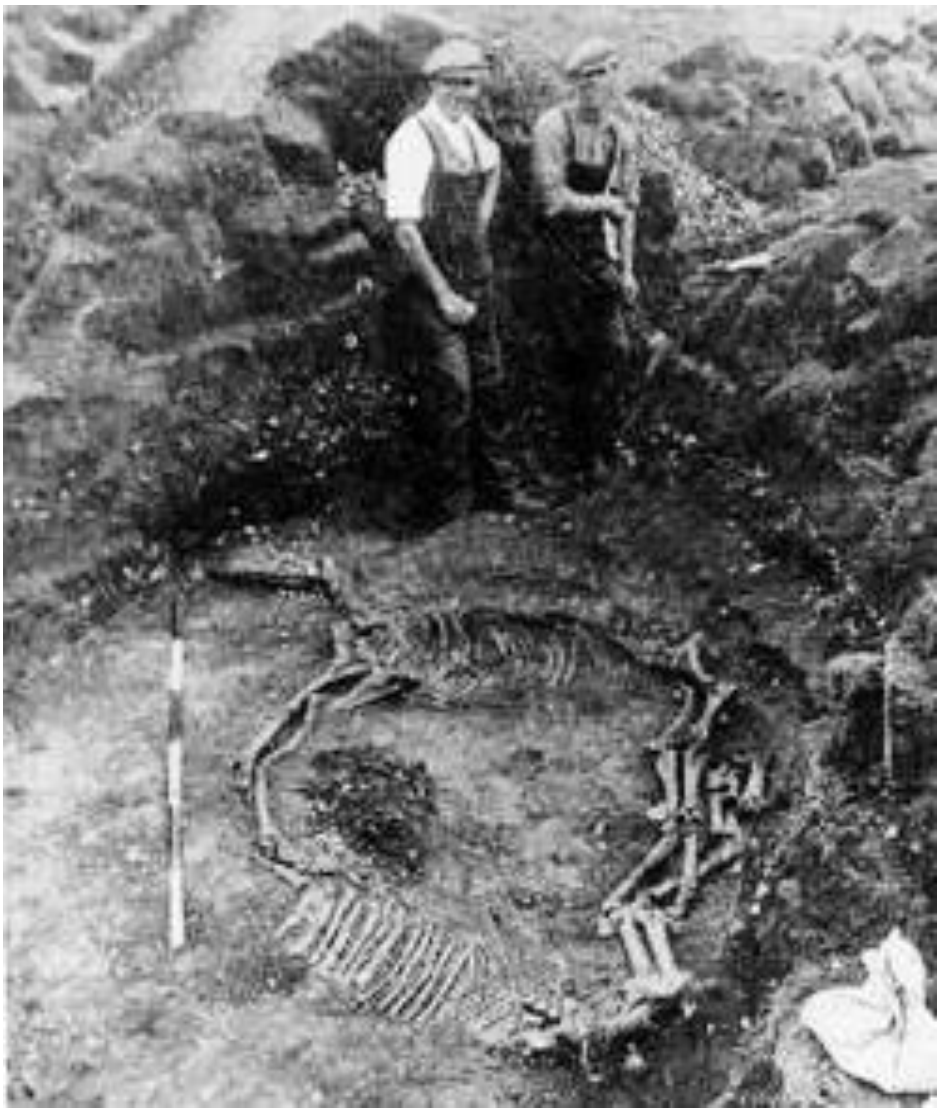

Figure 5.5: East Hendred double horse-burial, Vale of White Horse, Berkshire (Editor 1934).

Figure 5.6: Some chariot-burials include horses. Above: Thracian (Bulgaria) chariot burials are not all IA, some are LIA-RIP (photo: Andrey Mihailov/Bulphoto, Jarus 2017). Below: Pocklington chariot-burial, first British chariot-burial with horses to be radiocarbon-dated (awaiting results) may prove similarly LIA rather than the expected MIA (Krakowka 2017).

IA horse-burials, particularly with mound-features, appear to correlate with some later RIP and MED funerary-practices, particularly c.7th century AD. During this period there was an apparent resurgence in horse-ritual and Horseman-burials. The 7th-9th century AD MED cemetery at Sedgeford (Norfolk), which may epitomise the type of horse-ritual landscape at some British sites is considered in detail in the case-studies (Cross 2009, Cross 2011, Cross 2012, Faulkner et al. 2014a, Faulkner et al. 2014b).

Another significant Horseman-burial from this period is Mound-17 Sutton Hoo (see case-studies) burial of a 'princely warrior' and his horse (Carver and Evans 2005, Carver 1994, Cross 2012). MED Horseman-burials are a recognised phenomenon in Britain and Northeast Europe (Bertašius and Daugnora 2001, Bliujienė 2009, Bond 1996, Bond and Worley 2006, Caruth et al. 2005, Cathers 2002, Denison 1999, Fern 2007, Müller-Wille and Vierck 1970-1, Parfitt and Brugmann 1997).

The complete burials illustrated show horses with excellent to moderate preservation. However, even well-preserved burials, like the Sedgeford horse (Fig. 5.2), often do not survive current excavation practices intact, and skulls are particularly prone to fragmentation. The Sedgeford skull is currently in more than 30 pieces with the cranial section essentially destroyed. Such fragmentation and damage can also be sustained while still in-situ. Figure 5.7 illustrates a highly fragmented complete horse-burial. In cases of poor preservation due to acidic soils, only very careful excavation may indicate the presence of complete horses (Fig. 5.8) (Annaert and Ervynck 2013).

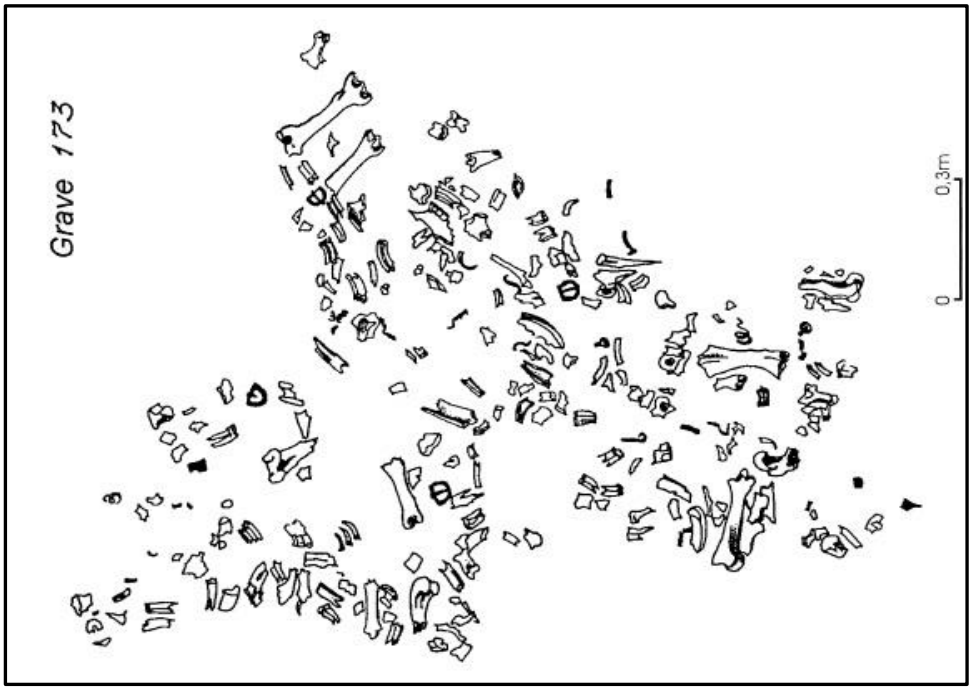

Figure 5.7: Marvelé cemetery (Lithuania) highly fragmented horse-burial remains of a damaged but originally complete horse burial (Bertasiu 2001: Figure 6).

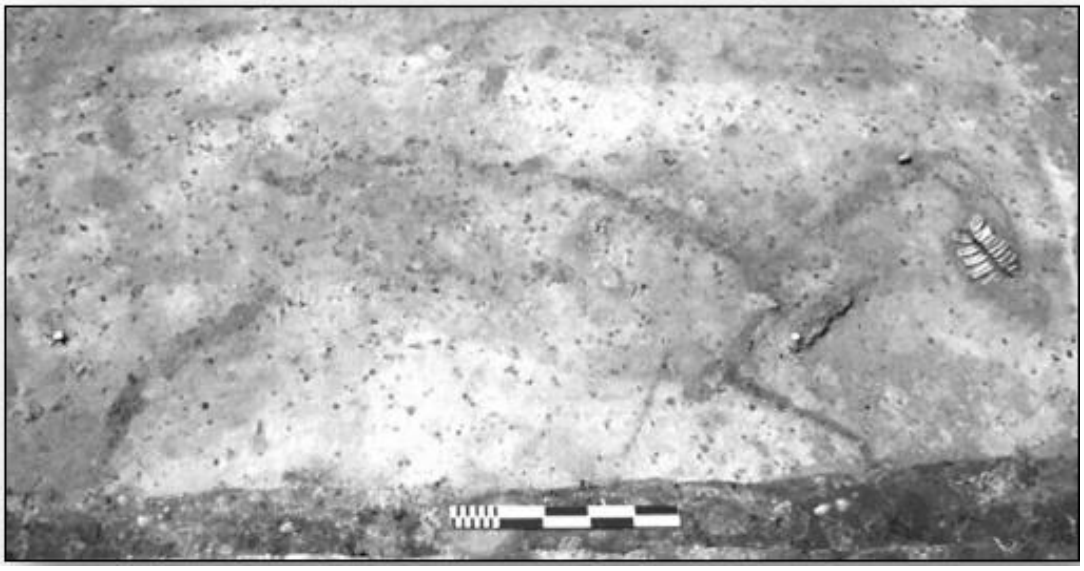

Figure 5.8: Complete horse-burial with very poor preservation. Careful excavation at Broechem cemetery preserved evidence of a complete horse burial where soil conditions left little skeletal remains (Annaert and Ervynck 2013: Figure 4, copyright Flemish Heritage Agency).

5.3.2 Horse Element-Burials

Element-burials are much more widespread and frequent than whole horse-burials, and are more difficult to define as ritual or waste disposal. These deposits are found in the same contexts as complete horse-burials (Table 5.1 above) and have been widely documented in the archaeological and folk traditions literature (Armitage 1991, Baron 2011, Bendrey 2007a, Bond and Worley 2004, Cross 2011, Grant 1989b, Grove 1901, Hamerow 2006, Hayhurst 1989, Hill 1995, Hukantaival 2009, McCormick 2007, Moore-Colyer 1993, Morris 2008, Piggott 1962, Simoons 1994). Element burials include horse head (found in all post-domestication periods), head and limb, limb, other articulated bones (ABGs), and disarticulated bones from potentially ritual contexts.

As can be seen from the level of degradation of the complete horse-burials in figures 5.6 and 5.7, it can be difficult to differentiate the remains of fragmented and/or disturbed complete horse-burials from intentional element burials. This may be particularly true where only teeth survive (Annaert and Ervynck 2013). Careful excavation techniques are necessary for such burials to be recognised.

Some notable British horse-element-burials were found at IA Danebury, (Fig. 5.9) with multiple pit-deposits, and at Sedgeford (noted above) (Cross 2011, Cunliffe 2014). Horse-skulls and head-limb (usually head-feet) deposits are the types of element-burials most consistently given ritual interpretations. Horse-heads are especially prominent in folklore traditions, with both negative (witchcraft) and positive (oracles, apotropaic) roles (Cross 2011).

Head or head-limb burials are known from a number of funerary contexts. In some, the head-limb-burials are considered to represent hide-burials with these elements attached (Langó et al. 2011, Nagy 2010, Piggott 1962). In Hungarian human-burials, head-limb versus whole-horse, identifies a cultural change from the Avar to the Hungarian Conquest periods (Bartosiewicz 2006). Horse-skull-burials persisted into the modern period (Cross 2011). The best known horse-skull-human-burials for this study period are both from MED cemeteries: the horse-head at Snape in Suffolk, and at Tournai (Belgium) in the case-study, King Childeric's burial (Davis 2001, Effros 2003:121-122). A number of

additional horse-skull and horse-limb inclusions with human-burials are discussed in Part IV-V.

Figure 5.9: IA Danebury pit-deposit of a dog and horse hind-limb (Cunliffe 2014:104, Fig. 98).

5.4 Summary Review of Horse-Burial, Ritual and Sacrifice

The identification and interpretation of horse-ritual depositions is a complex task. Definitions of what constitutes ritual and the means of identifying ritual burials are controversial. Some of the issues around the interpretation of ritual

animal burials have been discussed here, and the working definitions used in this research have been outlined.

A very basic typology separating depositions into complete horse-burials or horse-element burials are the primary focus, with the addition that disarticulated assemblages be investigated for ritual connections. All three types of depositions occur in cemeteries with human-burials and also without direct associations with human-burials. The case-studies consider all three types in human spaces, particularly burial contexts as indicating Horseman identities.

Horse-ritual observable in archaeological contexts is diverse in practice, and in chronological and geographic spans. Some would argue such ubiquitous coverage indicates that all peoples who use horses engage in the same rituals. A more detailed examination, such as presented here, indicates such a conclusion is not true. Where horse-burials occur, they always comprise only a very small portion of any cemetery population, and one which is not defined simply by wealth or status (Effros 2003:26-27, 115-134, Müller-Wille and Vierck (1970-1). A number of researchers have also noted that disarticulated horse assemblages also do not appear to follow the same treatment as the other primary domesticates which are typically also food-animals, and appeared to have ritual intention (Grant 1991b, Casey et al. 1993). Grant (1991b) also noted horses were strongly linked with dogs, as does Prummel (1992). Certain groups of people appear to have engaged in higher levels of horse-ritual, while others performed very little or no observable horse-rituals, even within the same cemeteries and cultures.

PART III

METHODS & MATERIALS

Given the multidisciplinary biological and cultural basis of this project, fieldwork, desk-based assessment and laboratory work all contributed to the analysis of horse and human-horse-depositions and how they reflect Horseman identities. Fieldwork took place within farm/veterinary venues, archaeological sites and museums based in England, Wales, Belgium, the Netherlands, Sweden, the USA, and Hungary (Tables 6.10-6.11). Desk-based assessment covered a wide range of literature, including: scientific literature from biology, human and animal clinical and anatomy studies, archaeology, zooarchaeology, and palaeopathology. The literature areas reviewed from within the arts and humanities included: history (secondary and primary sources), ethnography, social anthropology, religious studies, mythology, and folklore. Laboratory work centred on equine anatomical studies, dissection, taphonomic studies regarding carcass handling, butchery methods and marks, and preparation of skeletal specimens. Additional osteobiographical work (age, sex, size, pathology, populations) were laboratory, desk and site based.

The primary osteological analysis in this project is on the horses. Where existing bioarchaeological reports of the associated humans were already available, reanalysis was not generally done. The osteobiographic data was synthesised with funerary archaeology and historical data to interpret the forms, distribution and cultural meanings of horse-ritual and sacrifice practices and their relationship to Horseman identities in early Britain.

Coming from a background in human osteoarchaeology, an area of study which has benefited from a much expanded body of research over the last fifty years, the author originally assumed a similar degree of established methods and analysis in zooarchaeology of equids. Unfortunately, such a situation does not exist and so a greater emphasis on methods review and development was necessary than was originally planned. Due to this situation, the following

discussion emphasises the zooarchaeological methods and is more detailed than the succeeding section on human osteological methods which are well established.

As the available zooarchaeological methods and data are inadequate, this author engaged in extensive study of the equine skeleton, including the dissection of more than twelve modern horses, the detailed examination of c.35+ modern skeletons, and the examination of more than 100 archaeological horses or assemblages (Tables 6.10-6.12, also see APP6 for specimen details).

Chapter 6: Osteological/Archaeozoological Methods and Materials

6.1 Zooarchaeological Analysis of Horses

In the 1980's Maltby (1981) and Grant (1989c) noted the study of faunal materials was in its infancy, handicapped by excavators' disinterest, the lack of suitable data and integration with the overall archaeological record. While interest in animal-bones and zooarchaeology has increased over the last fifty years, many areas remain undeveloped. Work on the main food domesticate species (sheep, pigs and cattle) has seen significant increases in the body of research, but the study of animal-bones has not yet seen anything like the degree of research advances as are currently found in analysing the skeletal remains of humans.

The study of archaeological equids has lagged significantly behind that of both food-animals and humans. Zeder (1986) encountered issues in analysing 317 equid bone specimens from a site in Iran. She critically reviewed the literature available on differentiating equid species and elements (Bökönyi 1972, Eisenmann 1986, Eisenmann and De Giuli 1974). The primary methods available for differentiating equid species were based on tooth morphology. Zeder tested the published methods and demonstrated they were unreliable. More recently Müller (2013) similarly found it necessary to conduct primary research into equid tooth development and aging techniques. Since then, two other zooarchaeological researchers, Johnstone (Johnstone 2002, Johnstone 2004) and Bendrey (Bendrey 2007a, Bendrey 2007b, Bendrey et al. 2009), again found the existing studies and reference materials inadequate for detailed osteologic analysis and attempted to expand the available methodologies.

The issues related to small sample sets and the unavailability of reference materials remain serious problems in the study of archaeological equids. The issues around equid species identification from the skeleton remains unresolved, principally due to a lack of studies with adequately large sample populations which can take into account individual, population and species variation. This problem is true of equid skeletal analysis generally.

This author's investigation of the faunal report data suggests there are two primary reasons behind this neglect of such a culturally important species. The first is based in zooarchaeology's development from paleo-studies which centred on hunter-gather/subsistence societies relationships with animals, giving a focus on primary products (meat, hides, etc.). This fits fine with palaeo and pre-domestication human-horse relationships which focused on hunter-prey encounters, but is inappropriate to post-domestication where human-horse relationships appear to have had little to do with consumption. The second is no doubt related to consistently extremely small equid bone assemblages from archaeological sites.

Many sites literally only have a handful of identifiable equid bones, and even those with larger numbers of bones often only represent one or two horses. Given the workload demands of zooarchaeological analysis, particularly commercial analysis, it is not surprising that little effort has been devoted to analytical methods for such a small subset of faunal material. The lack of zooarchaeological reference data and good methods for sex and age analysis in particular has also contributed. The results are that much equid material from British sites, and elsewhere, has received little or no analysis.

The available methods aimed at identifying some of the smaller elements and, more importantly, determining basic aspects regarding age, sex, size, and pathology have proven questionable upon critical review. Rather than conduct the project using the minimal and often unsubstantiated methods currently in use, which would produce erroneous conclusions, the author included a significant amount of primary research, especially as regards sexing and palaeopathology.

Zooarchaeological analysis is less well defined internationally than bioanthropological research, but a general description of the current recommended zooarchaeology methodology framework is given in Table 6.1. This methodology is based on the publications of Baker et al. (2014:14, 18-21) and Reitz and Wing (2004:142-170), and was highly influenced by the work of many other researchers. While this methodology is aimed at field examination, laboratory methodology is essentially the same with greater concentration of

more detailed analyses of age, sex, size, and pathologies. This is the methodology framework followed in this project.

Table 6.1: Zooarchaeological Methodology
after: Baker et al. (2014:14,18-21) and Reitz and Wing (2004:142-170).

1	Site context – human habitation or funerary sites infer a generally limited Taxa/species set. Usually common domesticates and a few wild species.
2	Identify and maintain ABGs
3	Identify and Sort (within its find context) by bone Layout ABGs in anatomical position
4	Identify Taxa and species as possible, based on bone morphology and general size.
5	Estimate age (Re-evaluate after sexing)
6	Evaluate sex
7	Estimate size
8	Evaluate pathology

References used for element identification are in Table 6.2. Bone measurement follows von den Driesch (1976), with the use of standard slide gauge, tape measure or osteometric box. Directional nomenclature also follows von den Driesch (1976: 15-16), unless otherwise indicated. Skeletal representation, NISP, MNI are calculated according to standard practices. NISP is a fragment count. MNI is calculated based on skeletal representation by number of elements divided by the number of that element in one horse. This count can be refined using element-siding, age, sex, size, and context data.

6.2 Zooarchaeological Species Identification

6.2.1 Equid/Non-Equid: Taxa Identification

Differentiating equid skeletal material from other animals is well established. Most of the principal elements are species distinct even when fragmented.

Generally small fragments of diaphysis and rib are not always identifiable to species and may be designated large mammal (as regards horses).

Table 6.2: Equid Bone Identification References
(Equid to Non-Equid Differentiation) See references for full citation.

Author	Title	Date
Getty	Sisson and Grossman's: The anatomy of the domestic animals	1975
Axe	The Horse: Its treatment in health and disease, with a complete guide to breeding, training and management	1905
Budras	Anatomy of the Horse: An Illustrated Text	2003
Hillson	Mammal bones and teeth: An introductory guide to methods of identification	1992
Pales	Atlas Ostéologique pour servir à l'identification des Mammifères Du Quaternaire: I. Les membres Herbivores	1971
Schmid	Atlas of Animal Bones: For Prehistorians, Archaeologists and Quaternary Geologists	1972

The initial identification of skeletal remains as horse or equid, rather than other similarly sized and shaped and wild species is of primary importance. Heavily fragmented bones may only be identified to element and large mammal, though in most British (and European) contexts belonging to this study period 'large mammal' is likely to include only equids, cattle and some possibility of deer. Especially in fragmented archaeological assemblages, differentiating equid bones from cattle can be difficult (Schmid and Garraux 1972:11). The principal bones of the skeleton have individual species differences and designated diagnostic areas which allow species identification. Many of these diagnostic areas are located at the epiphyses (ends) of the bone, which are often damaged or destroyed in fragmented remains. Therefore, large portions of bone especially limb and rib shafts are often only designated "large animal". Cuijpers and Lauwerier (2008) did a preliminary study of a method differentiating cattle and horse-bone using histological differences, but it has not been further explored or generally used.

6.2.2 Equid Species Identification

Differentiating equid species osteologically is not well established. Many of the methods remain highly controversial, and none have been conclusively demonstrated (Gilbert et al. 1990, Johnstone 2004, Twiss et al. 2017, van Asperen 2013, Zeder 1986). However, site context is helpful in limiting the possible species present. For example, in first millennium AD sites in the UK and Northern Europe it is unlikely (but not impossible, especially during the Roman period) that non-horse equids will be present. There have been some identifications of donkeys and mules in these areas, but those in the UK are debated and none, so far, have been confirmed genetically (Clutton-Brock 1992, Clutton-Brock 1999, Johnstone 2002, Johnstone 2004). In contrast, donkeys and other ass species are native to parts of Africa and Asia, and a number of donkey burials are known in Mediterranean areas(Bar-Oz et al. 2013, Clutton-Brock 1992:63-66, Greenfield et al. 2012).

The issues around the differentiation of equid species are discussed at some length in Johnstone's (2002) thesis and in Meadow and Uerpmann's (1986, 1991) publications. Generally speaking, the current osteological methods for the differentiation of equids appear unreliable. However, as regards Britain, non-horse equids are also poorly attested in the historical documentation and overall, the existing evidence suggests non-horse equids are unlikely to appear in British contexts during the study period. Therefore there will be no further discussion of equid species differentiation, and all equid bones will be assumed horses (Order: Perissodactyla, Family: Equidae, Genus: Equus, Species: *Equus caballus*) unless otherwise noted (IT IS 2017).

6.3 Estimating Equine Age

The analysis of age, sex, size and pathology are all very interdependent (Baker et al. 2014:28-36, Hillson 1992:6, Scheuer and Black 2000, White and Folkens 2005). While age is listed first, a basic assessment of gross size is usually the first observation, particularly when sorting material into species, and informs the

more detailed estimation of age. Age is the first aspect to examine in detail as this affects the methods applicable for evaluating sex and interpreting size. Knowing the sex will help refine the age estimation, as females, males and castrates develop at differing rates. Age and sex contribute to the interpretation of bone and tooth sizes, in some aspects, quite importantly. The interpretation of pathology may be affected by age, as well as, sex and size.

Age data allows mortality profile analysis which is pertinent to interpretations of the economic, symbolic and ritual roles of animals. Skeletal age analysis for horses is well-developed for assessment up to the age of c.7-8 years when the skeleton is developing to an adult. After this age estimates are based on attritional changes which can be affected by numerous genetic and environmental factors. Two aspects of skeletal development are utilised: tooth development and wear, and rates of skeletal epiphyseal fusion (Adams and Poulos 1988, Allen 2003, Allen 2005, Armitage 1991, Bartosiewicz 2006b, Brown 1883, Butler et al. 2011, Evans et al. 2007, Getty et al. 1975, Girard and Ganly (trans) 1829, Greenfield et al. 2015, Levine 1982, Liyou and Wilson 2011, Martinez nd, Mills 1955, Müller 2013, Rackham 1995, Silver 1963, Strand et al. 2007, Townsend and Leach 1984).

The primary source for ossification/epiphyseal fusion ages used here is: Getty et al. (1975:272), Table 15-2 (Thoracic Appendage) and Table 15-4 (Pelvic Appendage), with additional reference to Silver (1963) and Barone (2010). Silver (1963) was a zooarchaeological standard but further research has highlighted inconsistencies and errors. Additional work by the author on vertebral body (centrum) epiphyseal fusion and pubic symphsis fusion as regards aging will be published separately.

The primary sources used here for age estimation by tooth development and wear are: Getty et al. (1975:460-470), Axe (1905:Vol.4, figures 607-622, Plates LXIV- LXVII) and Levine 1982. The incisor teeth are used to estimate age most reliably up to c.7-8 years (Fig. 6.1). This method is considered approximate from c.8-11 years and very approximate over 11 years, while Galvayne's groove (vertical line in maxilliary I3), commonly thought to indicate ages from 10-20 years, is completely unreliable as anything other than a general aged (10+)

indicator (Richardson et al. 1995). Levine (1982) developed a method based on cheektooth (premolars (P) and molars (M)) length specifically aimed at archeaological remains. Levine's method must be considered approximate, as the study had a small, very limited sample basis and needs further validation.

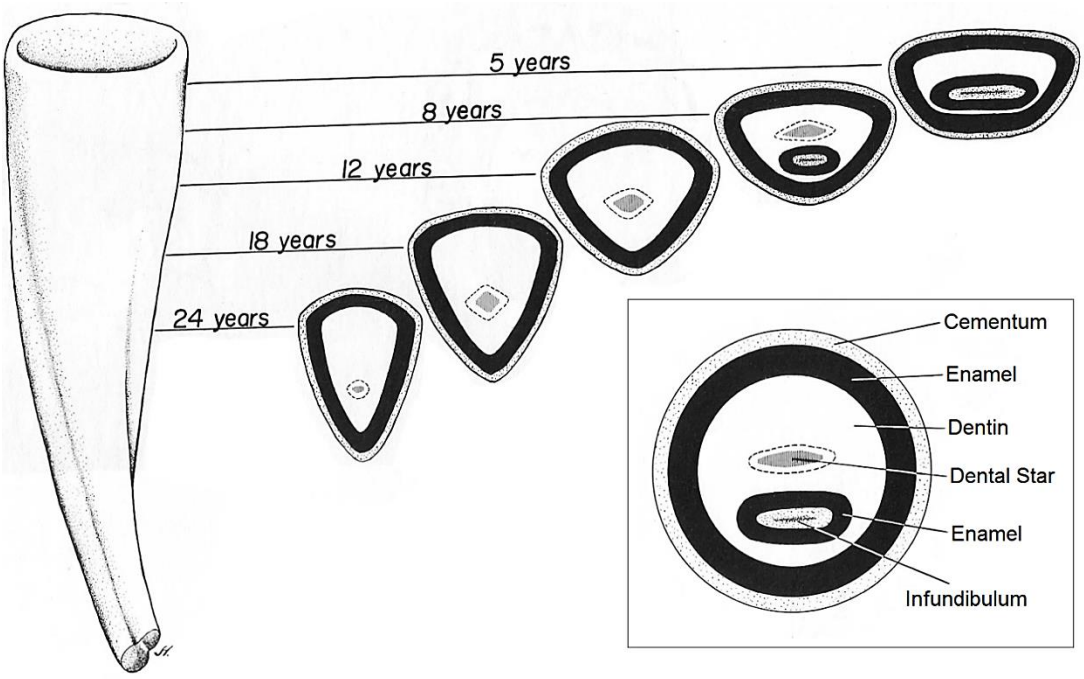

Figure 6.1: Age-related changes in horse incisor occlusal surface (mandibular incisor 1 illustrated). Wear changes are very reliable up to age 8, after which ages are approximate due to individual behaviours and environmental factors. (Sisson et al. 1975: 464, Fig. 18-19).

Age estimation is important on a number of levels, not least as it contributes to the evaluation of the biological data sex, size and pathology evidence. Age structures also contribute to understanding human-horse relationships such as use, breeding and care. Age classifications used in this study are based on a combination of skeletal evidence and social classifications (Table 6.3).

Table 6.3: Horse Age Classifications

MP fusion after Getty 1975: 272, Table 15.2, 298, Table 15-4.

Age Class	Abbrev	Age (yr)	Fused*
Neonate (Perinatal)	Neo	c.-0.5-0.5	None
Juvenile	Juv	c.0.6-3.5	MP
Young Adult	YA	4-7	All
Adult	A	8-14	All
Aged Adult	AA	14+	All

MP= metapodial: MC or MT (canon bone)

*Bones of the Appendicular skeleton

While 3.5 years old may seem too old to classify as a juvenile, the historical data suggests this age is not unreasonable. Pre-industrial societies appear to have weaned later (c.1-2 years old) and often initiated horses into an active working life at c.3-5 years old (Blundeville and Grisone 1561:29-33, Edwards 2007:38-54, Gladitz 1997:154-188, Schlamberger 2013). Racehorses are currently in prime working life at two years of age, but such a young working age is modern and controversial, having led to a working-life of only 3-5 years before retirement to breeding or potential culling, far too short a use-life to be attractive to societies actively using horses for more than leisure pursuits (Barnett 2006).

One problematic aspect of age-related morphology which has been used (or not used) in analyses is the relationship between age and bone growth. This regards changes in breadth (Metrics: BP, Bd, SD) and circumference (CD) of the limb bones. Bones increase in both breadth and length prior to maturity and epiphyseal fusion (Getty et al. 1975:22-23, Árnason and Bjarnason 1994). Ephyseal fusion of the majority (not all fuse) of the bones forms the basis of defining an individual as mature, at least skeletally. In horses, the major limb bones generally complete fusing at c.3.5 years (Getty et al. 1975: 272, Table 15.2, 298, Table 15-4).

After ephyseal closure, longitudinal growth ceases, but breadth typically increases in relationship to increased muscle mass. For example, one study showed an average 11% increase in circumference of the metapodials in the first six months after fusion and a 20% increase by 5.5 years of age (Árnason and Bjarnason 1994) (Table 6.4). Bones from the author's collection also illustrate the increases in the articular ends with age (Fig. 6.2)

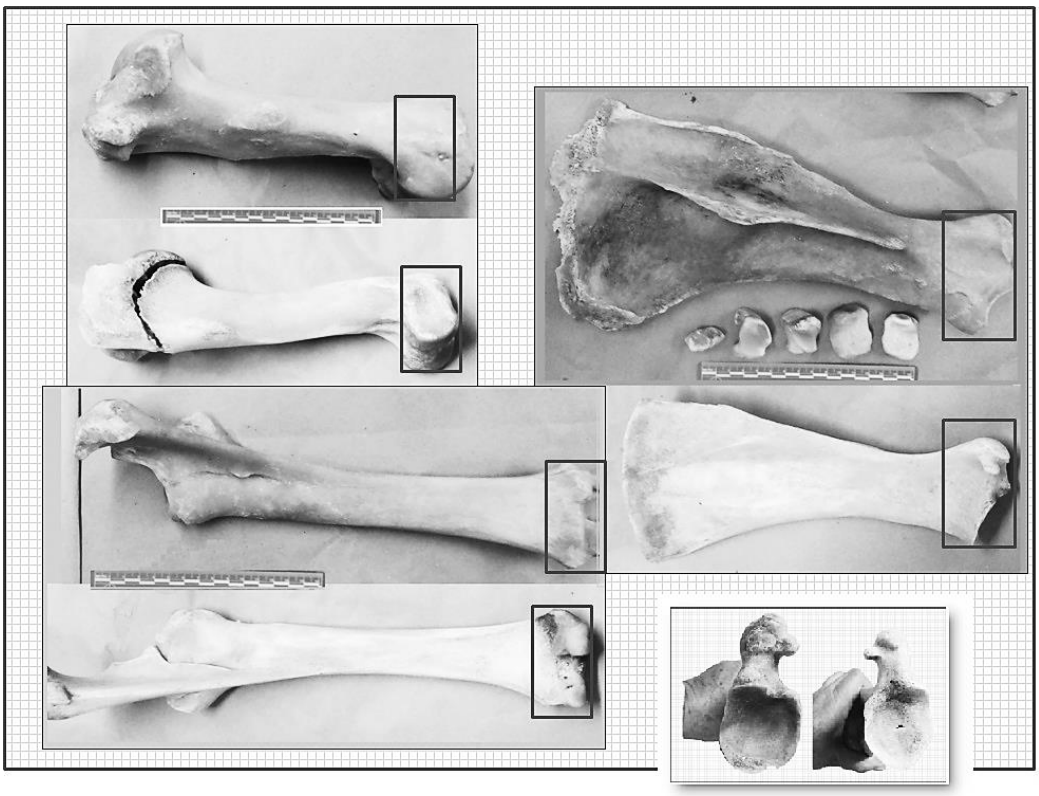

Figure 6.2: Age-related bone size comparisons in adult and juvenile horses from two horses of the same breed and herd. Breadth and circumference increase with age in relation to growth and increasing mass. The boxes on the distal portions are sized on the adult bone, illustrating the smaller size of the immature bone.

Table 6.4: Changes in MP Circumference From Age of Fusion (6 m)
Data: Arnason and Bjarnason 1994: Table 3, n=4882, average.
MP fusion after Getty 1975: 272, Table 15.2, 298, Table 15-4.

Age (months)	6	18	30	42	54	66	78
CD (mm)	150	166	175	178	179	180	180
% incr from 6m		11%	17%	19%	19%	20%	20%

MP= metapodial (canon bone); CD=Circumference

This aspect of relative gracility, as an age indicator, does not appear to have been considered in the zooarchaeological reportage reviewed during this project. In fragmented assemblages, typical of settlement sites, the presence of more gracile bones (smaller width or circumference) are interpreted as an indicator for smaller/lighter horses generally, especially in assemblages with few intact bones allowing the calculation of a withers height (WHt). Greenfield (2006) points out early fusing bones could belong either to juvenile or adult horses. However, he does not follow this idea through when considering the meaning of more gracile bones, instead he takes the usual interpretation that these bones correlate with smaller adult horses at the BZA sites he examined in the Balkans.

Other assessments, such as gracility indexes, again commonly consider more gracile bones as indicating lighter or 'finer quality', often called Arabian or Arabian-type, horses (Bökönyi 1974:240-255, Davis 1989a:22, Ewart 1911). Gracility indexes, used widely in British and European assessments of horse sizes and types, are a function of metapodial (cannon bone) breadth or circumference versus length (MP: SD/GL * 100). Rather than illustrating different types (breeds) of adult horses, these indexes, which reflect the correlation between breadth of bone and mass, may indicate different body types, but may just as easily indicate differences in age groups and the presence of younger horses.

One last point regarding age estimation, the standard fusion tables do not usually include estimates for the fusion of the pelvis (*ossa coxarum*) at the pelvic symphysis. Two sources mention fusion of the pelvic or pubic symphysis:

Butler et al. (2011) and Henson (2009:14). Butler et al. (2011) states the joint remains open, which does not match observed skeletal development in horses observed by the author. Henson (2009:14) states the pubic symphysis fuses from 4.3-7.1 years, but gives no study references. Based on observation of both known age modern horses and archaeological specimens by the author, the pelvic symphysis appears to fuse (pubic portion completely, Ischiatic portion varying degrees) in most horses at some point over 7 years of age (Cross in process).

6.4 Evaluating Sex in Skeletal Horses

6.4.1 Evaluating Sex – Equine Skull: Canine Tooth Development

Zooarchaeological sexing of equine skeletons is usually based on the presence (male) or absence (female) of canine teeth (Levine et al. 2002). While generally reliable in adult horses (over 5 years), this method has a number of issues. The primary point is the imprecise language in most reports regarding the rate of occurrence and morphology differences of canines in males and females (Baker and Daulby 2003, Gabriel et al. 1991, Armitage 1991, Bulatović et al. 2014). Canines are described as generally absent in females, but no studies could be found in the literature. Even anatomy references simply refer to canine teeth as well developed in horses (males) and usually fail to appear in mares (females), and when they do are usually vestigial. With this description, comes the note that there may be as much as a 25-30% chance a horse without canines is male and one with canines is female (Getty et al. 1975: 17).

Given the apparent lack of studies in the veterinary literature on the occurrence and development of canines, the author did a preliminary study. In addition, working with the University of Aberystwyth, two student studies were also attempted but failed to provide robust data. Anatomy work and discussions with veterinary dentists by the author suggests mares may regularly retain deciduous canines (presumably the so-called *vestigial* canines), which rarely erupt through the gum. Rare occurrences of normal, permanent canines have

been reported, most often in the mandible. The consensus that horses with normal permanent canines are most likely males appears reasonably robust, but would benefit from a proper study. The contention that horses with small or vestigial canines are females also seems likely, but there is much less anecdotal evidence and should be used cautiously (Bendrey et al. 2010, Bulatović et at. 2014).

In addition to the predominant opinions of the literature, no male horses examined in this project were found to lack canines and many females were found to have retained deciduous canines. Therefore this study uses canines for sexing as follows: present (male, typically four: Man(2)+Max(2)) and absent (female) or deciduous (female, typically two: Man(2)) (Table 6.5). The presence of small, but permanent, canines in adults is considered to indicate *possible* females.

Table 6.5: Equine Sexual Dimorphism - Adult Canine Tooth Morphology

After Getty et al. (1975:17, 460-470), PJ Cross observation of 15+ known sex samples

Element Area	Trait: Female	Trait: Male
C1: Man(2)+Max(2)	not usual	typical
C1Man(2) only	possible	possible
c1: Man(2)+Max(2) ('vestigal'/retained deciduous)	possible	not usual
c1Man(2) only	appears common?	not usual
P1 /p1)Max(2) 'Wolf tooth'*	possible	possible

*P1/p1, rostral to P2, appears to occur as a retained deciduous premolar, colloquially the 'wolf tooth', it is sometimes confused in the literature with the canines.

6.4.2 Evaluating Sex – Equine Pelvic Morphology

Human bioarchaeological methods for sexing are much more advanced than zooarchaeological and indicate the pelvis (os coxae), as the only element directly affected by sexual differentiation in mammals, is the best element for evaluating biological sex, followed by the skull (Mays and Cox 2000). Pelvic and sacral morphology are shaped by the biological requirements of reproduction,

therefore, methods based on their morphology are the most reliable sex indicators. However, using equine pelvic or sacral morphology is not widely understood or applied by zooarchaeologists. This is partly due to an absence of guidance in generally accessible literature, and partly because it is often difficult or impossible to apply to disarticulated, fragmented remains. This study found only six sites and five researchers who used pelvic morphology to identify female horses (Bulatović et al. 2014, Bendrey et al. 2010, Cross 2009, Cross in process, Gabriel et al. 1991, Miles et al. 1984).

Details of the use of pelvic morphology have not generally been presented in reports. Armitage (Miles et al. 1984:416-418:D1) identified females and castrated males at Barton Court Farm, apparently using pelvic morphology, but gave no details, and Gabriel et al. (1991) simply stated the pubis is more robust in the male. Bulatović et at. (2014) gives one of the most detailed method description, incorrectly citing Sisson and Grossman as 1966 (1975), but illustrates the problems with interpretations of the text.

Bulatović et at. (2014) identifies specific morphology: the sciatic (sic: *ishiatic)* arch and transverse diameter of the pelvic inlet. However, the finding “slightly expressed” is probably based on the photographs (Getty et al. 1975:299), which may be misleading, as they show different views the male (which may be gelded) and female anatomy. The text states the female ischiatic arch is c.33% wider than the males, rather than ‘slightly expressed’ as it seems to appear in the photos. The text about the transverse diameter (width between ischiadic spines, males c.15cm, females c.20cm) implies an approximate average, and is given without any supporting sample data (Getty et al. 1975:303). This measurement must vary in different size horses and to be useful requires at least male/female ranges and correlation to size to be used to sex individual horses. Grimm also uses pelvic morphology to identify a horse as male, but again without any specifics given (Grimm 2008).

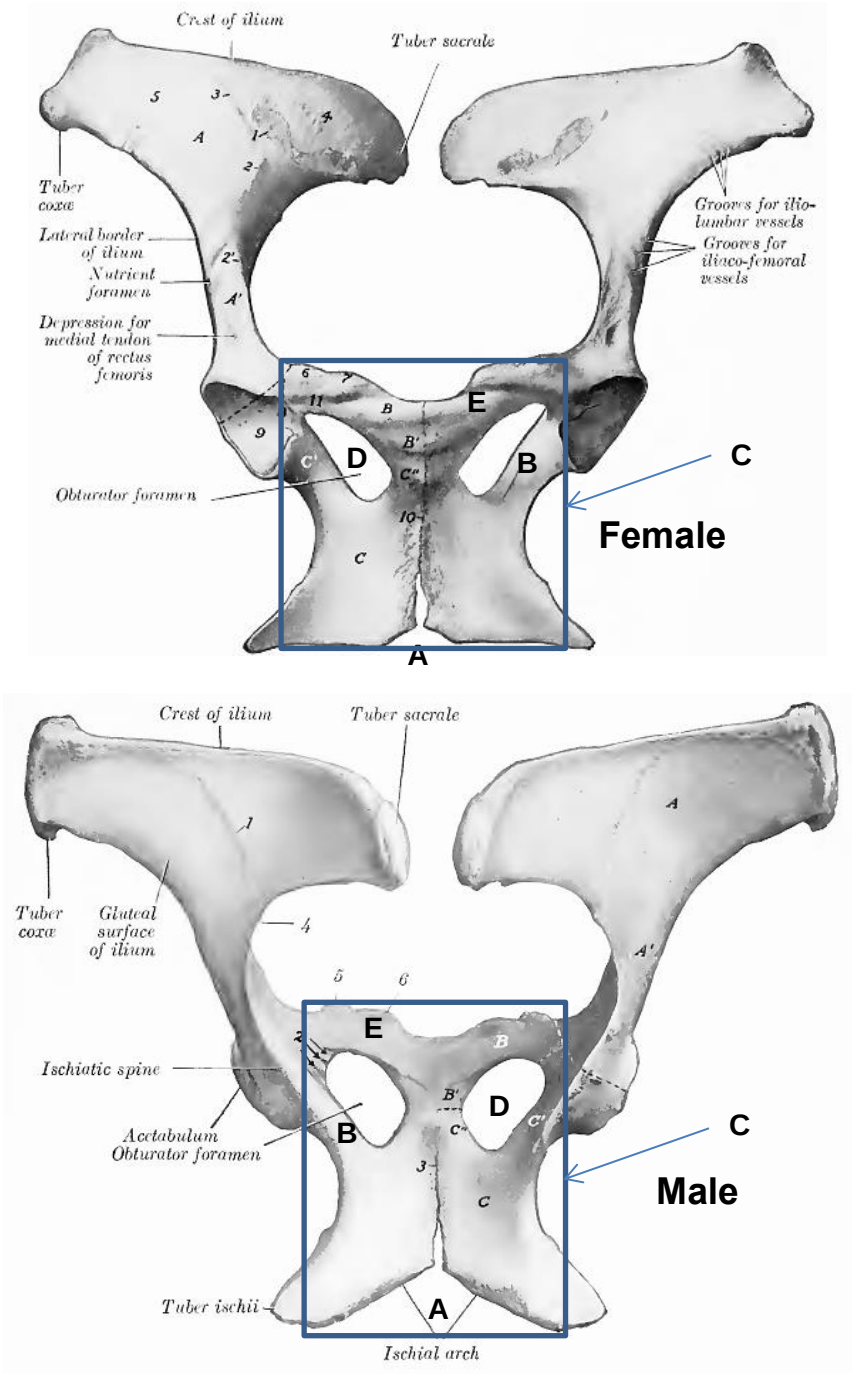

Figure 6.3: Sexual dimorphism of the equine Os coxae (Getty 1975: 299).
A) Ischiatic Arch - Male: angled; Female: flat.
B) Ischio-Acet. Ramus - Male: robust/rounded; Female: gracile/sharp
C) Ischio-Pubic Form - Male: rectangular; Female: square
D) Obturator Foramen - Male: oval; Female: round.
E) Cranial Pubic Symphysis – Male: thick/rounded; Female: thin/sharp

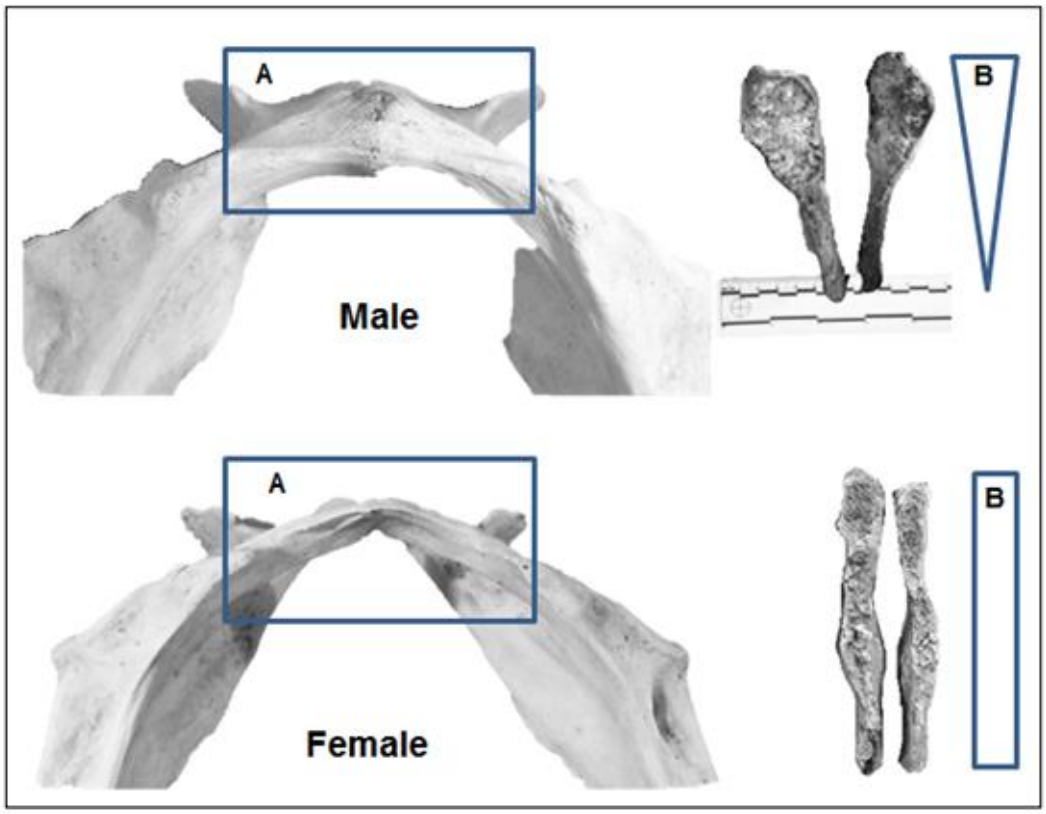

Figure 6.4: Sexual dimorphism of the equine pubis.
A) Cranial View - Male: thick, rounded, bi-convex; Female: flat/convex – flat/concave. B) Pubic symphysis (articulation) – Male:broad/triangular; Female: thin/long rectangular.
Specimens: Hungarian Natural History Museum (photos by author).

Aside from the sometimes poorly understood descriptions in Getty et al. (1975), no published methods appear to be available for morphologic sexing of the horse pelvis. Using the diagrams and descriptions published in Getty et al. (1975:297-304) as a basis, the author studied horse pelvic anatomy from the collection of known horses collected, dissected and prepared by the author with the aid of the University of Aberystwyth and the collections of the Hungarian Natural History Museum (aided by two Synthesys grants). Based on these studies, a non-metric sexing method based on pelvic morphology, particularly the pelvic symphysis was developed (Table 6.6, Figures 6.3-6.4).

This method is best applied to complete or mostly complete adult Ossa coxae. Archaeological specimens from horse-burials regularly include reasonably complete pelves which can be sexed with this method. While fracturing is not

uncommon, most often damage is to ‘tips’ of the ilium (Tubers sacrale and coxae) and ischium (Ischiatic tuberosity). On males particularly, the robust bone of the pubic symphysis may be reasonably preserved even in more fragmented remains, though much greater care needs to be taken in the excavation of horse remains. Based on early findings, juvenile (under c.3 years), non-reproductive females may have more ‘masculine’ morphology.

DNA sexing is currently the most reliable method of sexing (Svensson et al. 2008, Svensson et al. 2012, Telldahl et al. 2012). However, it is relatively expensive and rarely done. A programme of DNA sexing would be extremely useful in assessing morphological methods, particularly regarding archaeological horses reported as females which have canines.

Table 6.6: Equine Sexual Dimorphism of the Pelvis (Os coxae/ Innominate)

After Getty et al. (1975:297-304) with further development/testing by PJ Cross (in process).

Element Area	Trait: Female	Trait: Male
Ischiatic arch	shallow / flat	angled
Ischio-Acetabular ramus	gracile	broad/robust
Ischio-Pubic form	"square"	"rectangular"
Obturator foramen	round	oval
Pelvic Symphysis	convex ventral, flat-concave dorsal	bi-convex
Pelvic Symphysis articular surface	thin/long rectangle	thick/broad/triangular
Cranial margin Pubic Symphysis	thin/sharp	thick/rounded

All sexing in this project used canine and pelvic morphology.

6.5 Estimating Size

The estimation of size is part of the primary data triad (size, age and sex) collected in the osteological analysis of both humans and animals. All three

attributes are interrelated and the usual convention is to consider age first, then sex and lastly size. This is somewhat ironic in that perceptually, size is probably the first categorisation made when generally assessing a living animal and when scientifically examining skeletal material. However, this order is due to the need for at least a basic concept of age and sex in order to make a reliable interpretation of the animal's size from the skeleton.

Body size is used in life-history analysis of individuals and populations to provide evidence of overall health, sexual dimorphism, nutrition and activity, and as an indicator of natural selection and/or human-cultural selection (Albarella 2002, Bernstein 2010, Boessneck and von den Driesch 1978b). Changes in size are also used to infer environmental change, with, the horse one of the focal species used in climate studies (Alberdi et al. 1995, van Asperen 2011). Size change is also currently one of the markers used to identify domestication in a number of species, including equids (Brooks et al. 2010, Davis 1981, Davis 1987, Dobney and Larson 2006, Higham 1969, Shackelford et al. 2013).

Size is basically interpreted as height and weight (mass). Height in live horses is taken at the shoulder and is called withers height (WHt) (Figures 6.5 and 6.7). The units used for measuring live horses are hands (H) and metres (m) or centimetres (cm). Weight can be measured by scales in living horses, but is commonly estimated from length and girth measurements. The units used for weight are pounds (lbs) or kilos (kg).

The hand (H) is currently defined as 4 inches or 10.16 centimetres (Clark and Rackham 1995). WHt will be given in hands and/or metres, usually in the form: 12H or 1.22m. In equestrian literature, the hand is expressed generally as 12, 12.1, 12.2, and 12.3, with each point representing one inch. Since this is confusing with the normal metric system, this format is not used. As it is useful to use a metric format when calculating averages and trends, "metric" hands may appear in data and tables, identified as H(m). Hence, a 12 hand, 1 inch WHt will be expressed either as 12¼H or 12.25H(m).

6.5.1 Methods and Issues in Measuring Weight

Weight is a difficult component to assess in archaeological horses with any accuracy. The simplest method for approximating weight is based on limb bone circumference (CD) or diameter/breadth (SD) (Fig. 6.6), which increases in proportion to increased mechanical loading, one aspect of which is increased weight (Árnason and Bjarnason 1994, Bökönyi 1974, Higham 1969, Moore and Schaefer 2011, Ruff et al. 1991). This is typically used to produce a robusticity (gracility or slenderness) index derived from the metapodial (MP = MT3 or MC3) breadth divided by length. Sometimes the phalanges (PH1 or PH2) are used (Alberdi et al. 1995).

Gracility Index = SD/GL (of MP)

The most common problem associated with gracility indexes is related to growth/age. After the MP fuses, growth in length (GL) stops, but the breadth and circumference increase in response to increases in weight and activity. Exactly how much SD/CD can increase in response to age via increases in muscle mass is unknown. Data published in studies of the genetically isolated Icelandic horse (Árnason and Bjarnason 1994, Strand et al. 2007) suggest, for that population, fusion of the MC3 takes place by c.8 months of age, then SD/CD increases c.10% and weight increases c.30% between 18-48 months.

However, the age of fusion can vary from 6-18 months in different individuals and breeds, with Thoroughbreds having a particularly wide range (Getty et al. 1975, Strand et al. 2007). Varying fusion ages will affect SD/CD increase rates simply due to maturation. Fusion rates and MC/MT slenderness are also affected by growth and hormonal changes associated with castration. Animals, including horses, castrated prior to maturity often experience delayed fusion (longer growth period) resulting in longer, more slender limbs (Davis 2000, Hammack and Gill 2009, Higham 1969). The presence of males, females and significant numbers of geldings in the Thoroughbred data mentioned above may be a major factor in the wide range of fusion ages.

Size to weight ratio variability, as shown in these studies, means estimations of size and weight in archaeological horses, especially demographic studies of disarticulated material, may be mistaking variations in age or sex profiles for size profiles. Some studies also use gracility coupled with WHt as a type of breed indicator, which will suffer from the same issues. For instance, Ewart's (Curle 1911) identification of Plateau and Forest type horses at Newstead Roman fort from similar length but varying circumference metacarpals may reflect differences in age (which he does not appear to consider) or nutrition rather than a breed-type. Bökönyi (1974: 247, 270-273) discusses slenderness for European horses over time, with reasonable sample sizes for Pannonian (Hungary and surrounding areas) and Germanic horses during the first millennium AD. However, while Bökönyi notes that breadth increases in association with age, the statistics appear to include unknown age and known immature specimens. It is also unclear whether the samples have been corrected to remove multiple counts for single individuals. The end result is conclusions based on this data are unreliable.

Higham (1969) also deemed bone metrics unreliable for estimating weight in archaeological animals. This may be a premature conclusion. A rigorous review of breadth to length data with known sex and age archaeological horses may provide a better controlled dataset large enough to provide some information.

Because gracility/robustness is interrelated with sex, age, growth and relative nutrition planes, weight/slenderness indexes are not reliable for general population demographics when these factors are unknown. However, the indexes may be useful when sex, age and fusion status can be more reliably estimated, as is often the case for complete and partial horse-burials. In most faunal reports, detailed data on horses found in British sites rarely have complete osteobiographies of individual animals. Unfortunately, gathering enough complete and reliable data to produce meaningful demographics was beyond the resources of this project, therefore weight and slenderness/robusticity will not be discussed further in this study.

6.5.2 Methods and Issues in Measuring Stature (WHt)

In the skeletal horse, WHt estimations are calculated from limb bone lengths. Figure 6.4 diagrams the equine limbs, giving anatomical and common terms and indicating those elements typically used to estimate size. The limb bone measurements used are listed in Table 6.7, illustrated in Figure 6.6 and an example provided in Table 6.9.

Based on a review of the literature and measurement studies of the author's known live-WHt collection, the most consistently reliable measurements use the metapodials (MT/MC) (Johnstone 2004:137-161, Weller et al. 2006). The metapodials are also robust bones, surviving well in archaeological assemblages. The splint bones (MC2/4 and MT2/4) are never used for such measurements and MC or MT is used in this work to refer only to the MC3 or MT3, unless otherwise indicated.

The most common, and considered the most accurate, method for measuring WHt in living horses is a graduated stick with an adjustable bar placed at the maximum height of the withers while the horse stands on a hard, level surface (Fig 6.7). A number of more approximate methods are also used: a stick without a bar, tape measures and wall or fencing marks. Using a tape measure and following the curve of the horse's body gives a greater height than using the stick measure (Árnason and Bjarnason 1994). There is evidence that following the body contour was used historically in Britain (Clark and Rackham 1995). Changes in standing surface may increase or decrease the measured height.

The accuracy of WHt measurements is not especially precise, which should be kept in mind when comparing modern or historical size data. Willoughby's (1975) *Growth and Nutrition in the Horse*, which brings together data from a number of studies, indicate WHt method varied in many of the studies creating problems for comparison of datasets (Willoughby 1975:33, 66).

Table 6.7: Measurements used for Calcultating Horse Size

After von den Driesch (1974:92-93).

ABBREVIATION	DESCRIPTION
	WITHERS HEIGHT ESTIMATION
GL	Greatest Length
GLI (GL1)	Greatest Lateral Length - only used with horses
LI (L1l)	Lateral Length - only used with horses, based on Kiesewalter (1888)
	WEIGHT/BUILD ESTIMATION
SD	Smallest Breadth of diaphysis
CD	Smallest Circumference of diaphysis

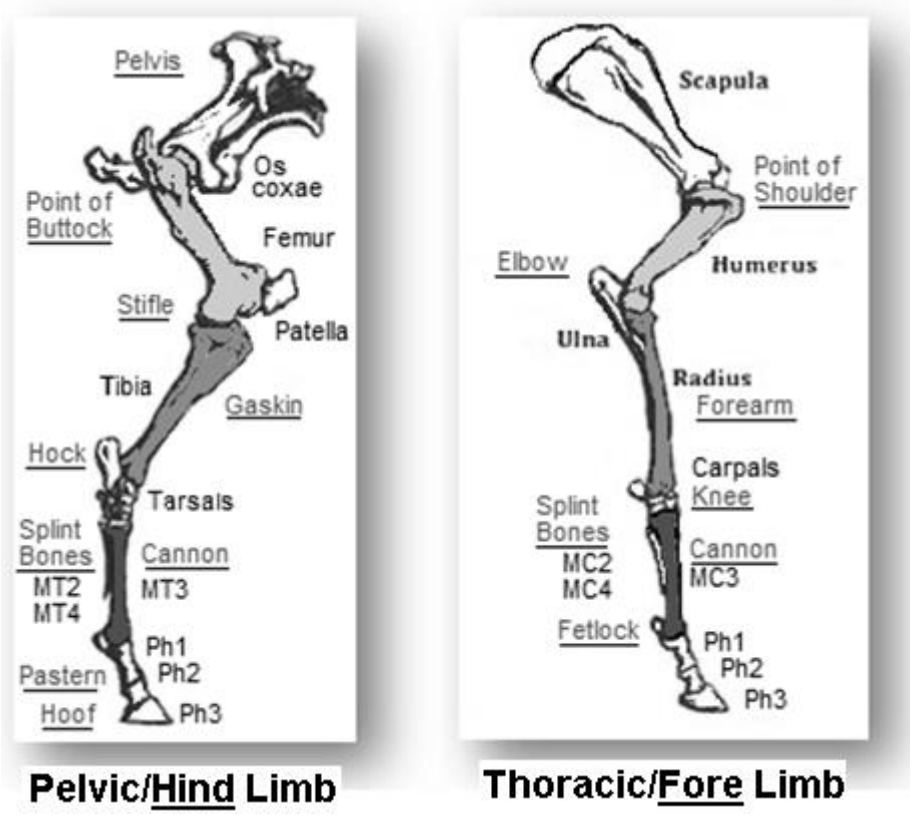

Figure 6.5 Horse-limb anatomy and bones used for WHt estimation (femur, tibia, MT, humerus, radius, MC). Anatomical and common (underlined) names are given. MT = Metatarsal (cannon). MC = Metacarpal (cannon). Ph = Phalanges (pastern and hoof)

Historical data may include a host of other issues regarding precision and translation into modern usage. In Britain and other English-speaking countries, the hand (H) is the normal measurement unit for horses. Aside from the variation in actual human hands being used to measure any horse, there is variation in the definition of a hand. A hand may refer to a hand-span or palm-breadth, which may mean width across the knuckles (proximal base of proximal phalanges 2-5) or palm-width (proximal base of proximal phalanx 1-5). When it was defined in inches, the hand/palm measurement appears to have varied between 3 and 4 inches (Encyclopaedia Perthensis 1816:52, 55). So, a reported 17H (c.1.7m) horse from 17th century England may actually have been a 13H (1.3m) horse!

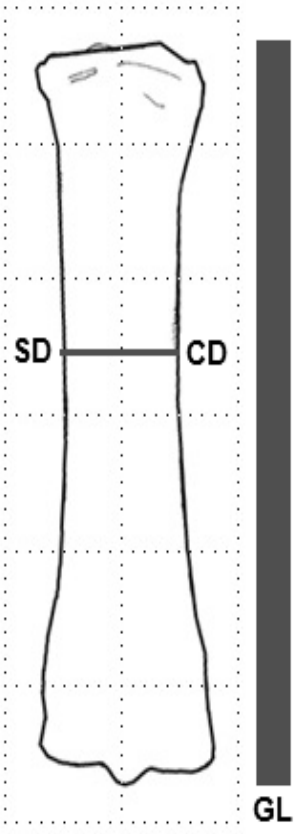

Figure 6.6 Metapodial bone measurements for WHt and weight. GL= Greatest Length. SD= Smallest Diameter. CD = Smallest Circumference. MC3 – Left, dorsal view.

Living WHt is estimated from the skeleton using bone lengths. There are three commonly cited variants of this method: Kiesewalter (1888) (with corrections by von den Driesch and Boessneck (1974)), Vitt (1952), and May (1985). Johnstone (2004:137-161) does an excellent review of these variants. This author also checked each method using some known-height specimens. All of the methods give similar results when applied correctly to the primary limb bones, if reported without excessive precision.

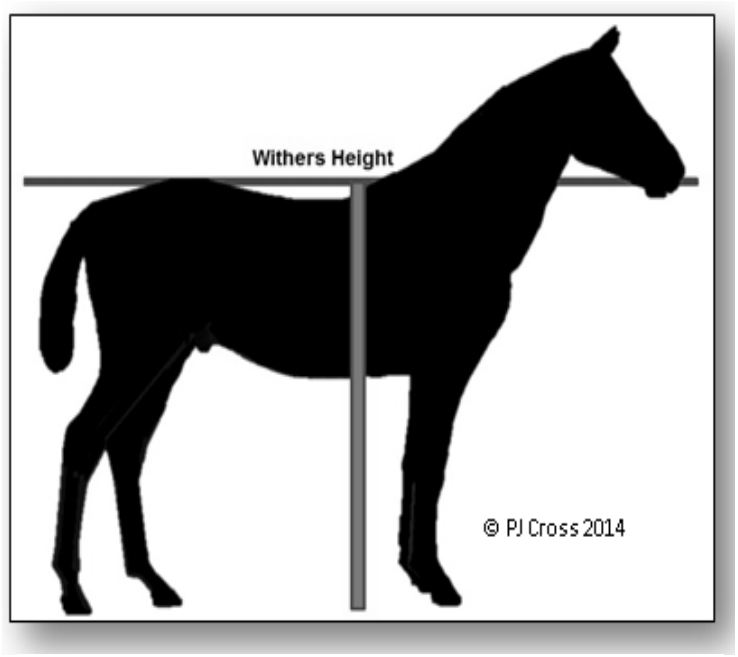

Figure 6.7 Estimating WHt in the living horse is done using a measuring stick at the maximum height of the withers.

To summarise Johnstone's (2004:137-161) review, Kiesewalter (1888) uses a simple conversion-factor based equation and Vitt (1952) uses a table range format. Vitt and Kiesewalter were reassessed by von den Driesch and Boessneck (1974), Ambros and Müller (1975) and May (1985). The primary problem with the continued use of Kiesewalter (1888) is because his method

uses three different length measurements (GL, GLI, LI) applied to the various bones. This mix of measurements regularly confuses researchers. Most commonly, GL is incorrectly applied to all bones, probably because Vitt only uses GL. Occurrences of these errors is cited by some of the reviewing authors (Johnstone 2004) and was also observed by this author in two papers: Lyublyanovics (2006) and Levine et al. (2002). Lyublyanovics appears to incorrectly use GL and the wrong factors, while Levine also uses GL, incorrectly naming it Greatest Lateral Length (which is GLI).

Vitt's table has the advantage of building in the error factor for these calculations, which is typically ignored when just an equation is used, but it is cumbersome and requires a midpoint value be used for most statistical analysis. May's variant effectively combines both methods, removing the confusion from the varying bone measurement and making analysis straight forward. For these reasons May (Table 6.8) is the simplest method to use, and so is less prone to errors. Therefore this author uses and recommends May (1985) for estimating WHt in horses.

May (1985) equation and table of factors for estimating WHt in horses:

Equine WHt mm = Bone Mmt (LI or GL) mm * Bone Factor

A note of caution when applying this method to equids generally: there is some evidence non-horse members of the family *Equus* may have different morphometric ratios (Johnstone 2004). More testing utilizing known WHt specimens of zebra and asses is needed to potentially correct the factors used. This has not been attempted as part of this research. The results of such testing may also impact the use of WHt measurement in fossil equids.

Table 6.8: Factors for Calculation of WHt (May 1985)

Bone	LI Factor	GL Factor
Humerus	4.868	4.634
Radius	4.317	4.111
Metacarpal (MC3)	6.403	6.102
Femur	3.501	3.501
Tibia	4.361	3.947
Metatarsal (MT3)	5.331	5.239

Realistic Estimation of Size

There are a set of associated issues which affect how the results of measuring WHt are used and interpreted. Firstly, there is a pervasive problem with sweeping statements based on very small sample sizes. Secondly, researchers use varying sets of bones which have varying correlations to live height interchangeably. Thirdly, inaccurate and inappropriate averages are used to estimate both individual and population heights. Lastly, unwarranted mathematical precision is used with estimates. All of these factors, coupled with unacknowledged error factors, result in falsely precise WHts and incorrect interpretations of the data.

Metric data has not always been collected for all archaeological excavations and small sample sizes are a perennial problem in zooarchaeological metric analysis. Unfortunately, small samples have not dissuaded researchers from attempting to show changes in horse size across geographic and/or chronological spectrums (Clark and Rackham 1995, Duval et al. 2013, Forsten 1993, Johnstone 2004, Thomas et al. 2013, van Asperen 2011). Some note their small samples, but others hide the issue in various statistical manipulations, which, coupled with the inherent lack of reliable dating, means

most studies of horse size change are almost certainly misleading. Even at sites with good data collection, horses typically represent only 1-3% of any assemblage, with percentages of 10% considered high. Samples are often so small, a single tall horse may impact the average for a large time period. This makes it difficult to create robust demographics for horse size.

As horses are relatively rare archaeologically and suitable bones available for measurement vary, it is unsurprising that a variety of bones have been used to estimate WHt in the hopes of increasing the comparable sample sizes. Ideally, using different elements would provide comparable WHts, and at one time or another, everything from the skull to individual vertebrae has been used to estimate size (Ewart 1907, Johnstone 2004:151-152).

If the minimum number of individuals (MNI) isn't calculated and/or bone contexts are not sufficiently evaluated, both of which are regular problems unidentified in published data and when preparing reports from archived zooarchaeological material, then using multiple bones can falsely increase the sample population. This is especially important when dealing with disarticulated material rather than complete horse-burials, where it is more likely bones from one individual could be used as if they represent multiple animals. The author found publications and data sources often did not make it clear measurements for different bones belonged to a single horse even from known ABGs.

The published methods discussed above indicate that only the limb bones provide reliable correlations with WHt. However, even restricting the bones used for WHt to the limbs may create problems for horse size demographics, as different bones have varying growth and varying in terms of accuracy in reflecting over stature. Davis' (2000) study of sheep, found that like horses, males were typically only slightly larger than females and importantly noted the scapula, humerus, radius and astragalus grow beyond the age of epiphyseal fusion, therefore WHt estimates using these bones will be affected by the age.

Different limb bones typically give different WHt values for horses. Table 6.11 gives height estimations calculated from the bones of one horse with a known live WHt. The WHt calculated from each bone element varies. Such variation is

not surprising given the varying degrees of correlation with WHt, but it can cause problems with the accuracy of averages to reflect real changes in height. In this case, the femur and humerus both over-estimated this horse's WHt.

As in the Table 6.9 example, height values in the animals examined during this study typically had a minimum to maximum variation of c.10cm (1.0H). Ambros and Muller (1975) considered ranges of 7-8cm normal, with a maximum of 10cm. Johnstone (2004:157) found most of her known individuals varied 6-10cm, but found the overall range was 4.7-14.9cm.

The example illustrated in Table 6.9, is for a modern adult male Cleveland Bay horse with a live WHt of c.16H (c.1.6m). Using the average of all of the six primary limb bones gives a reasonable estimation of this horse's actual WHt. However, If only certain elements were used to arrive at a given average, the given WHt could vary between 1.6 and 1.7m. If error factors are applied then this becomes less significant, but they are rarely used.

Table 6.9: Comparative WHt Calculated from Limb Bones
Known WHt horse (male Cleveland Bay), after May (1985).

ELEMENT	Mmt(mm)	Factor (GL)	WHt (m)	WHt (H)m
Humerus	*360*	4.624	1.7	16.4
Radius	*390*	4.111	1.6	15.8
MC3	*263.5*	6.102	1.6	15.8
MT3	*306.5*	5.239	1.6	15.8
Tibia	*416*	3.947	1.6	16.2
Femur	*484*	3.501	1.7	16.7
	Average		1.6	16.1
	Range	1.60-1.69m	15.78-16.68H(m)	

Error factors in height estimation are notoriously large, even for humans where a huge amount of research, including forensic-motivated work has been unable to refine estimates. Height estimation is very imprecise. This is especially true when lacking specific, large population datasets, as is the case for horses. The error when calculating WHt is typically +/- 5cm (Johnstone 2004:154).

The bones which yielded the maximum and minimum WHt values also varied in the skeletal metrics collected as part of this project, as did the bone which provided the most accurate WHt in known height specimens. Generally, the metapodials and the tibia provided the most accurate WHt. Johnstone (2004:137-161) also noted similar variation in her dataset. These differences may simply indicate general body variation in horses, or possibly reflect different growing conditions during each horse's maturation which can affect fusion rates and height (Weller 2006).

Lastly, but probably most importantly, is the problem of false precision. The use of mm and excessive decimal points when dealing with WHt estimates are spurious precision. The difference between 1310mm and 1320mm is significant mathematically, but is not significant in terms of actual horse size. As has been illustrated here, height is very much a broad estimate and the measurements used to express it need to reflect this, especially as estimates for various bones for a single individual may vary 10cm. Given this and an error margin of 5cm, identifying horses and horse populations with 10cm differences as different breeds or types of horses is not supportable. Certainly, WHt should never be expressed as mm, and even cm suggests unwarranted precision and accuracy.

Overall, restricting size demographic studies to measurements using only the metapodials and expressing WHt in whole hands (H) and/or metres (m) with only one, or a maximum of two decimal places, are likely to give much more realistic trends. Using only the metapodials reduces the chances of duplication of data from individual animals as much as possible, and also the issues related to measurement variances and unequal averages. The use of these bones is also unlikely to significantly impact available samples, as these bones are quite robust and amongst those with high degrees of survivorship. This can be seen in Bökönyi's study (1974:246, Table 3), where MC/MTs regularly provide the

majority of data. This work restricts the element used to the MC whenever possible to further improve the reliability of comparative data.

6.6 Evaluating Equine Pathology

Pathology was evaluated based on the author's training in Human Osteology and Palaeopathology MSc course (University of Bradford) and subsequent study in equine anatomy and the clinical literature.

6.7 Equine Materials

The material examined for this project included a significant amount of archaeological and modern specimens. The modern materials, dating from 1900 to 2014, were analysed from university, museum and personal collections, including material collected and prepared by the author (Table 6.10, appendix APP6). Two further grants from Synthesys were applied for an granted for examination of materials from the Hungarian Museum of Natural History which greatly helped the author's understanding of morphological sexual differences and expressions of pathology. Unfortunately museum collections rarely hold significant specimen data, which prompted the author's collaboration with ABERS to dissect and collect animals with known histories of use and injury. The only other collection of known history horse skeletal material in the UK is Dr. Marsha Levine's, who routinely denies access by non-affiliated researchers, and also did so when approached by this researcher. Additional modern material is held by the Nation Museum of Scotland (NMS), but this was discovered too late in the project for significant examination. Photographs, analyses and data also supplemented materials directly examined.

Eight UK sites, three Netherlands and Belgium sites, and a selection of material from the Hungarian National Museum were selected for analysis (Table 6.11). The institutions or organisations holding the skeletal material were traced and

contacted. Arrangements were made to examine the materials, but in some cases problems arose.

No skeletal material from the Kings Barrow could be found until very late in the project, when a small portion of the horse-material was discovered at the British Museum (BM). Which was evaluated based on photographs requested and taken by the BM curator. Also, despite agreed arrangements with PRS, the company holding the Driffield Terrace material, they did not have most of the equine or human skeletal material available at the agreed appointment, so only a small portion of the material was made available for direct examination. To supplement this, one of the horses and one of the associated human skeletons were examined visibly on display later. The horse-material from Ezinge (NDR) and Tournai (BLG) were only available for visual examination.

Some materials from two of the UK sites (Lakenheath and Sedgeford) were previously examined as part of my MSc. The Sutton Hoo and Lakenheath horses were only dealt with cursorily in the MSc. For this project, the Sutton Hoo data collected was re-evaluated, and materials from Lakenheath and Sedgeford were re-examined. Examination of the Sedgeford material included examination of a newly discovered additional horse-burial.

Table 6.10: Modern Equine Reference Materials Examined by Author

See appendices for full listing of specimens examined

Collection Name	Location	Date	Description of Materials
Bradford Zooarchaeological Reference	University of Bradford, Arch. Sci.	2008-2015	Partial skeleton of one modern horse
Cross Collection (Cleveland Bay, Welsh Mtn Ponies)	Bradford, UK	2011-6	c.12 partial and complete horses of known breed, sex and age collected and prepared by Author in conjunction with University of Aberystwyth (ABERS)
Cross Collection (Grade light horse, Miniature Horse)	Vancouver, WA, US	2014-5	3 complete/near complete horse skeletons (exposed) collected from private owners, prepared by Author
Hungarian Natural History Museum Zoology: Equids	Budapest, Hungary	2012, 2013	c.10 equids from collection of modern horses, Mongolian horses (E.caballus, E.ferus and crosses), zebra and Asiatic asses.
Sheffield Zooarchaeological Collection	Sheffield University, Archaeology	2011	Small collection of modern equid specimens
BLM Wild Horse and Burro Program and Population Management	U.S. Bureau of Land Mgmt, Burns, OR, USA	2014	c.10 skeletons examined insitu, retention of portions of 3 (Cross Collection) from collection of exposed modern horse skeletons.

Date = Date examined and/or collected

https://www.blm.gov/adoptahorse/onsitegallery.php?horseCategory=86

https://www.blm.gov/or/districts/burns/newsroom/files/whbpopulation.pdf

Table 6.11: Archaeological Horse/Human Materials Examined by Author

Skeletal material from UK unless otherwise specified.

Collection Name	Location	Dates	Description of Materials
Broxmouth Hillfort assemblage	University of Bradford	2013	Disarticulated horse assemblage. (LIA-RIA). NISP c.328
Driffield Terrace, York cemetery site	Palaeoecology Research Service, Hull	2011	Small portion of assemblage made available, NISP c.30 (RIA).
Lakenheath cemetery site	Lakenheath AFB, Suffolk	2008, 2011	2 horses from warrior burials (early Med(AS)). Human bone unavailable. NISP c.235.
Museum of London Archaeology Collections	London	2011, 2012	Large collection of horses from London sites, LIA-Medieval. NISP c.2500+.
Sedgeford cemetery Site	SHARP, Sedgeford	2007, 2008, 2009, 2010,	Humans (7) and horses (6+) from 2 burials, 4 deposits and disarticulated horse remains LIA-Med(AS) from cemetery site. NISP
Newstead Roman Fort (Curle assemblage)	Nation Museums Scotland,	2017	1 complete horse, 20 crania/man, c.40 disarticulated bones. NISP c.265.
Sutton Hoo Burial 17	British Museum, London	2008	Man and horse from mound burial, c.7th century A.D. NISP c.410.
Vindolanda Roman Fort	Vindolanda Charitable Trust, Hexham	2016	3 horse crania + 1 mand. NISP c.4.
Sheffield Zooarchaeological Collection	Sheffield University, Archaeology	2010	Small amount of archaeological specimens, including Durrington Walls (IA), NISP c.45.
Hungarian National Museum	Budapest, Hungary	2012, 2013, 2016	Archaeological horses primarily from funerary contexts 1st mil. A.D. NISP c.1200.
Noordelijk Archeologisch Depot	Nuis, Netherlands	2011, 2012	Horses from LIA-Medieval contexts. NISP c.250.
Museum Wierdenland	Ezinge, Netherlands	2011, 2012	Horses from LIA-Medieval contexts. NISP c.300.
Tournai Museum	Tournai, Belgium	2012	1 horse + 1 skull from Childeric burial & pits, NISP c.150.

6.8 Methods & Materials: Human Bioarchaeology

The evaluation of the humans associated with the horse-burials follows essentially the same process as described above, with different references. Anatomy and pathology was evaluated based on the author's training in Human Osteology and Palaeopathology MSc course (Archaeological Sciences, University of Bradford). Primary references used are summarised in Table 6.12. Osteometry was conducted using standard osteometric boxes or sliding callipers, unless otherwise indicated.

Table 6.12: Primary Human Bioarchaeological References
(Only first author, short title given, see references for full citation)

Author	Title	Date
Buikstra	Standards for Data Collection for Human	1994
Hill	Evaluating Mandibular Ramus Flexure as a Morphological Indicator of Sex	2000
Bass	Human Osteology: Laboratory / Field Manual	1995
Scheuer	Developmental Juvenile Osteology	2000
White	Human Bone Manual	2005
Trotter	Estimation of stature from intact limb bones	1970
Pearson	Mathematical...Stature of prehistoric	1899

In this study, the author primarily reassessed the human-burials, finds and contexts from the published and unpublished materials available for each site, synthesizing the data with the focus on their relationships with the horse-depositions and how the whole indicates the Horseman identities considered. The exceptions are Sedgeford and Sutton Hoo, where the author examined some of the human skeletal remains. This was specifically done to reassess the remains in light of the issues around Horseman identities, and to assess materials for isotopic analysis (this project aspect was dropped. when Dr. Montgomery left the University of Bradford). For reference, the detailed MSc Sedgeford skeletal reports are included in the appendices.

The MSc examinations of the Sedgeford burials (S0025-Woman, S0027-Juvenile) directly associated with the woman-horse-burial were done according to the standards of the Bradford Biological Anthropology Research Centre (BARC), University of Bradford, and at BARC. Examination of those individuals and additional burials also followed BARC standards, but took place on site at the Sedgeford Historical and Archaeological Research Project (SHARP) facilities. Examinations included all the surrounding humans of the woman horse-burial and some near the central horse-burial. Sex, age, stature and pathology were reassessed for all of these individuals.

Regarding Sutton Hoo, a number of visits (2009-2012) were made to the site (Woodbridge, Suffolk) and the author interacted with, and presented parts of this research to, the National Trust and Sutton Hoo Society, which became project partners. The site included one warrior horse-burial inhumation (Mound-17). Human-horse cremations were also present and previously reported on by Julie Bond. Cremains were not directly examined as part of this project. The surviving Mound-17 skeletal remains were located with the British Museum, and primarily evaluated for isotope analysis, as this was an early project focus. The results of the osteological assessments are presented in Chapter 7.

6.9 Methods: Dating and Contexts

Dating and context analysis was based on published and grey literature, personal communications, and physical examinations. Documentation regarding finds, human/faunal analyses and context analyses was reviewed and synthesized to establish the full contents of often complex burial-groups, relationships between burial-elements, burials, and locations of all horse-depositions, as well as what cultural analysis had been attempted. Most burials were context dated. Where radiocarbon-dating was done, dates given are calibrated years at 90%+ probability, unless otherwise stated, in the format: cal. 123-456 BC/AD.